



Selected from the best mannequins in New York, Detroit, and Chicago, these girls model late styles in Mrs. Ford Carter's Official World's Fair Fashion Show, held daily at the Blue Ribbon Casino. An apple a day keeps the masseur away.

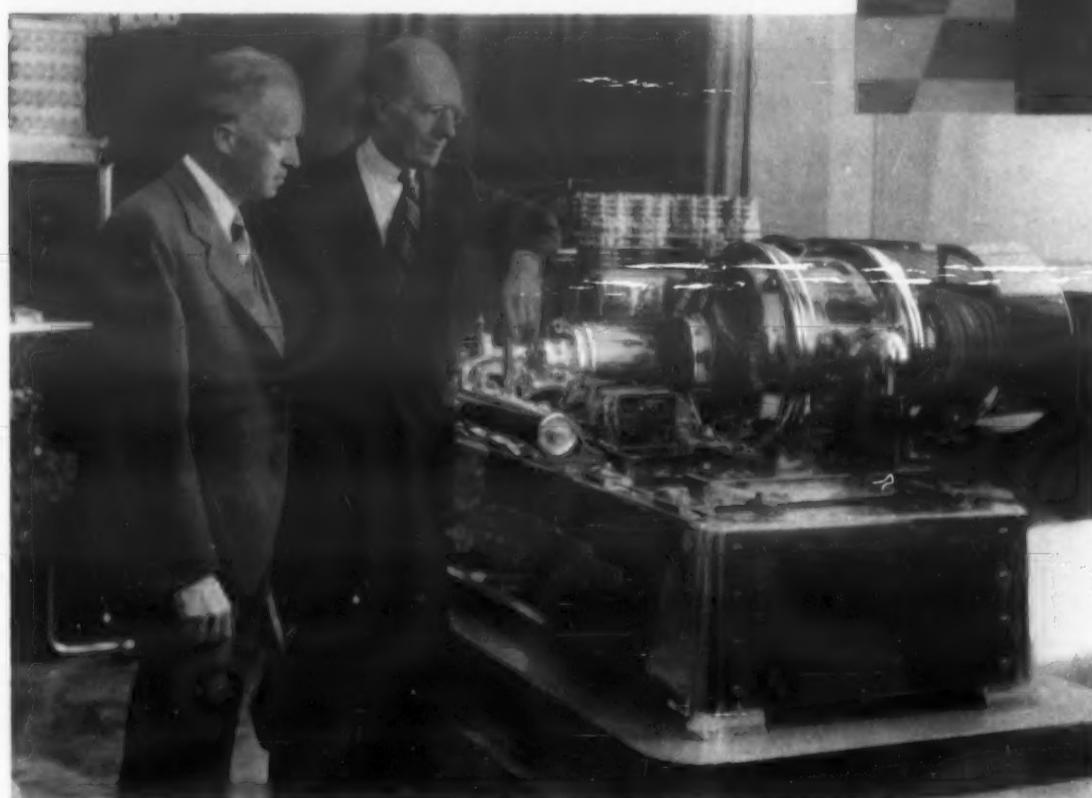


Carl Grayson, whose singing has been packing crowds nightly into the roof garden atop the La Salle hotel, is one of the most popular entertainers Chicago is offering to Fair visitors.



Impressive north facade of the Hall of Science building at the Fair is shown above. This structure is the central motif in the vast group of buildings at the Fair. In the foreground is a sculptured fountain.

Charles F. Kettering (right), president of General Motors Research Corp., is entirely sold on the future of air conditioning. Below he is seen explaining to O. E. Hunt, vice president of General Motors Corp., how the 10-ton Frigidaire compressor can be used in comfort-cooling applications. This picture was taken in the Frigidaire exhibit in the General Motors building at A Century of Progress.



Lovely Jane Froman, whose beauty is matched only by her glorious voice, is now broadcasting over a coast-to-coast Columbia network for Frigidaire. Perched on a Frigidaire air conditioner, Jane agrees that it's grand to be alive.



From distant Ukraine, one of the new European countries created by the Treaty of Versailles, came exhibits of Old World culture to the Fair.

REFRIGERATION NEWS

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TRUPAR SALES OFFICIALS PLAN FALL CAMPAIGN

Trips to Fair Will Be Awards in Fall Sales Drive

DAYTON—Officers, department heads, and sales representatives of the Trupar Mfg. Co. met at the factory here July 24 and 25 for a series of meetings at which general sales problems were discussed and plans laid for a fall selling campaign on Mayflower refrigeration, scheduled to open this week.

Entire first day was given over to private conferences of sales representatives with factory officials. Second day, general meetings of sales representatives were held, at which Trupar executives and department heads spoke on Mayflower products and their sale.

H. J. Hunt, president, opened the general meeting. Following his address were others by William Myers, treasurer, and H. H. Hardy, sales manager. F. C. Geiler, vice president in charge of engineering, spoke on features of the 1933 Mayflower household refrigerator line, and A. D. Greene, commercial sales manager, acquainted the sales representatives with recent refinements in Mayflower commercial equipment.

Don Dasher, factory superintendent, explained various factory operations used in the manufacture of Mayflower refrigeration. William Hunt, service manager, outlined the Mayflower service policy.

In the afternoon meeting, J. E. Saum, special factory representative, gave model sales demonstration, and John Wirtz, New York sales representative, showed how to use a new type of window display in which live models are featured.

H. C. Patterson of the Trupar sales promotion department, gave a general outline of fall selling plans, and announced that approximately 200 free trips to A Century of Progress will be awarded by the factory and distributors to salesmen who make their quotas during the August-September drive.

FRIGIDAIRE RAISES WAGES OF EMPLOYES

DAYTON, Aug. 2—Frigidaire Corp. put into effect yesterday a 10 per cent increase in pay for all hourly workers in its two plants here and in company-owned branches throughout the country.

In the announcement of pay increases made by E. G. Biechler, president and general manager, it was stated that all salaried workers who have been receiving less than \$1,800 a year also will be given a 10 per cent increase.

Employees of branches in the following cities are affected by the pay increases: Albany, N. Y., Atlanta, Ga., Baltimore, Md., Washington, D. C., Buffalo, Chicago, Cleveland, Dayton, Denver, Detroit, Fort Worth, Tex., Kansas City, Mo., Los Angeles, Milwaukee, Boston, Newark, New Orleans, New York City, Oakland, Calif., San Francisco, Minneapolis, and St. Paul.

KELVINATOR HOLDS FIRST OF DEALER CONFERENCES

DETROIT—Kelvinator Corp.'s mid-summer sales campaign was getting under way this week with the first of a series of dealer conferences being held in various parts of the country. Within 10-day period every Kelvinator dealer in the United States will have been told of the part he is to play in the drive.

LIBBY - OWENS ORDERS FRIGIDAIRE COOLERS

TOLEDO—Libby-Owens-Ford Glass Co., makers of safety and other types of glass, this week placed a large order with Frigidaire Corp. for water-cooling equipment for its main office and three plants.

RMA Code Filed as Nema Pact Awaits Final Approval

WASHINGTON, D. C.—The code proposed by Nema to govern the electrical industry under NIRA still awaited approval by President Roosevelt early this week although more than a week had elapsed since public hearings were adjourned, at which time the code was thought ready for approval by the chief executive.

Deputy Administrator W. L. Allen, who presided over the hearings on the code, is known to have asked to be given time for further study of the code before presenting it for final approval, which indicates that further changes may be made.

In the meantime the Radio Manufacturers Association has filed its own code and has asked for a special hearing. The Radio Manufacturers Association was one of the subdivisions of the electrical industry which objected to inclusion in the Nema code at the open hearings on that code.

KELVINATOR SHOWS GAIN FOR QUARTER

DETROIT—Net income of \$1,414,564, after all charges including Federal income tax, was reported by Kelvinator Corp. last week for the quarter ended June 30. This compares with \$730,002 for the corresponding quarter of 1932, according to George W. Mason, president of the company.

Commenting on the report, Mr. Mason said, "During this period, the company set a new record in shipments. Although refrigerator prices continued at rock bottom levels, the increased volume of business enabled the company to realize a reasonable profit margin."

July shipments through the twenty-first of the month are in excess of the shipments for the entire quarter ending Sept. 30, 1932. Contrary to precedent, the company will be able this summer to keep employment above usual summer levels, and at higher wages and salaries than in the spring months."

FRIGIDAIRE ADVERTISES AIR-COOLING EQUIPMENT

DAYTON—Promotion of Frigidaire air-conditioning equipment for residences and commercial establishments reached the newspaper advertising stage last week when display copy was released to daily papers in key cities.

Until last week, Frigidaire had restricted its air-conditioning advertising to class magazines and trade publications, pending an upturn in business conditions and opening of the domestic market for comfort equipment of this type. Newspaper copy appeared last year in New York City and in one or two special cases.

Copy is being released by the Geyer Co. at the instruction of distributing (Concluded on Page 20, Column 2)

Looking Forward

The Aug. 9 issue of Electric Refrigeration News will include another rotogravure section devoted to A Century of Progress Exposition. The Grunow exhibit will be featured. The supplement with the current issue is built around the Westinghouse exhibits. General Electric and Frigidaire exhibits and personalities were pictorialized in roto supplements which formed part of the two preceding issues.

On Aug. 15 the Beer Cooling Equipment Directory and Handbook will be ready for distribution to dealers and distributors of electric refrigeration equipment. This book will contain specifications of all leading makes of beer cooling equipment, a resume of the principal beer cooling methods employed in conjunction with mechanical refrigeration, a digest of state laws that regulate methods of dispensing beer, a discussion of beer coil cleaning meth-

ods, and a directory of manufacturers of beer cooling equipment and beer pumps.

On or before Aug. 15 the special issue of Refrigerated Food News devoted to the subject of refrigerated trucks will make its appearance. This issue will bring the subject of refrigerated transportation up to date, reporting all new developments in the application of mechanical refrigeration and sold CO_2 systems to refrigerated trucks, and including a review of important developments that have taken place in this field within the past year.

The Aug. 16 issue of Electric Refrigeration News will include another Century of Progress rotogravure section, featuring the Norge exhibit.

Specifications of commercial refrigeration machines will be published in Electric Refrigeration News for the first time in the Aug. 23 issue.

Comfort at the Fair



Adjoining General Electric's display at A Century of Progress is this exhibit office, air cooled by the suspended room cooler visible in the rear.

Penn Develops New Type Humidity Control

DES MOINES, Ia.—Penn Electric Switch Co. here is introducing a new humidity control, type 840, for operating small fans, valves, etc., in domestic or commercial service, according to Nelson Delevan, sales manager.

The control is housed in a walnut brown molded bakelite case with a thermometer on the face of the cover to give it the appearance of the Penn types 810 or 813 room thermostats.

An element has been produced for operation of this new control by winding a specially prepared paper strip around a corrugated spiral. One end of the strip is adjustable by means of a small tension screw, while the other end is fixed to the spiral.

The free spiral end moves an armature to open and close an electrical circuit, the contacts being the same Penn magnet structure used in other Penn products.

The mounting of the paper element is designed to avoid undue strain at high temperatures and humidities.

An adjusting lever permits easy setting of the control for operation at various relative humidities.

If for any reason the control's calibration is changed by unusual conditions, it can be corrected by checking with a standard humidity indicator and adjusting with a single screw.

YORK GETS ORDER TO COOL 20 MORE CARS

YORK, Pa.—York Ice Machinery Corp. has received an order from the Baltimore & Ohio Railroad for air-conditioning equipment to be used in 20 of the railroad's passenger cars.

These cars—sleepers, chair cars, reclining seat cars, and coaches—are to be run in the B. & O.'s air-conditioned service to A Century of Progress fair in Chicago.

The order, received July 20, calls for complete delivery within 11 days. The equipment is being installed at the B. & O. shops at Baltimore, Md., and Washington, Indiana.

Beside the apparatus just purchased, York Ice Machinery Corp. has furnished equipment for air conditioning 142 other cars on the B. & O., including those in the B. & O. air-conditioned train now on display at the Chicago fair.

UNIVERSAL COOLER CORP. AIR CONDITIONS OFFICES

DETROIT—Engineers of Universal Cooler Corp. have installed equipment in the company's plant on Melville Ave. here for cooling several offices on the second floor of the building. A system of ducts is used for bringing cooled and dehumidified air from the centrally located refrigeration machines.

Conditioned air is supplied to the office of G. M. Johnston, president, by a one-ton Universal system, while a compressor giving five tons of refrigeration is used in the system which cools the upstairs drafting room and offices of William Higham, F. J. Gleason, and Thomas S. Pendegast. Another three-ton system cools the offices in the accounting department.

Norge Plants Still at Peak Capacity

DETROIT—With its plants in Detroit and Muskegon operating at peak capacity at the end of July, Norge Corp.'s sales from July 1 through July 20 were equal to all sales for the last six months of 1932, according to John E. Knapp, vice president in charge of sales.

"In June, Norge had the biggest month in its history," says Mr. Knapp, "and we entered July with unfilled orders totalling more than six thousand units. During July, there has been no evidence of any appreciable slackening of orders."

NORGE LAUNCHES SUMMER - FALL SALES ACTIVITY

Advertising Schedule Is Largest in Norge History

DETROIT, Aug. 2—Three business-building programs welded into a single campaign were launched by Norge Corp. yesterday among all units of its selling organization to spur summer and fall refrigeration sales. "Business Builders' Program" is the name given the drive by Norge officials.

First effort of the campaign is that of securing new dealers, while the second is being directed toward increasing sales of established dealers. The third program is designed as a salesmen's contest in which a total of \$8,500 in cash awards will be distributed among high-ranking retail men.

Backbone of the entire campaign will be Norge advertising—to be used in greater volume than in any period during the company's history. Campaign plans call for use of national magazine, trade paper, newspaper, billboard, direct-mail, and novelty advertising during the entire month of August.

To spur activity in solicitation of new dealers, Norge Corp. has created a new division of the Viking Club—crack Norge salesmen's organization—for distributor salesmen who secure their quota of new retailers. In addition, dealers franchised during the campaign period will receive gratis a supply of Norge promotional, display, and sales training equipment.

Existing dealers who purchase a specified number of Norges during the drive will receive free of charge a number of window display and novelty items.

(Concluded on Page 20, Column 5)

40-CENT HOUR FIXED BY GRIGSBY-GRUNOW

CHICAGO—Cooperating with President R. E. Grunow's industrial recovery program, Grigsby-Grunow Co., manufacturer of Majestic refrigerators and radios, established on July 31 a new wage scale for factory employees with 40 cents per hour as the minimum rate, and instituted a working schedule of a seven-hour day and a five-day week.

In his bulletin to factory employees, LeRoy J. Williams, vice president and general manager, explained that guards, watchmen, and power house employees will be excepted from observance of the 35-hour week. The factory will not be in operation on Saturdays or Sundays.

Factory employees will work daily from 8 a. m. to noon, and from 1 p. m. to 4 p. m., Mr. Williams announced.

PERFECTION STOVE CO. RAISES SALARIES 10%

CLEVELAND—Perfection Stove Co., manufacturer of kerosene-operated refrigerators here, has increased by 10 per cent the wages and salaries of all persons in its employ. This means the restoration to employees of approximately one-half of all decreases put into effect during the depression. This pay increase followed by only a few days the establishment of a 40-hour week for all employees, according to company officials.

167 CARLOADS INSULATION SHIPPED IN ONE MONTH

DETROIT—During April, May, and June, the Detroit Paper Products Corp. here shipped a total of 167 freight carloads of its Hermetex paper insulation, according to a report issued last week by Seymour Franklin, president of the organization. Daily production schedules now in effect call for three eight-hour shifts of workmen.

IN THIS ISSUE: ANALYSIS OF NEMA STATISTICS BY LOUIS RUTHENBURG

BY GEORGE F. TAUBENECK ---

Food and Agriculture Building

Admission free

Dioramas, moving models, and actual processes are used in this building to show phases of production, preservation, and distribution of foods.

LOCATION: On Northerly Island, just north of the Government group. Orange, lemon, and grapefruit trees from Florida beautify the grounds surrounding the building. Lounges are provided for visitors on roof terraces.

AMONG THE EXHIBITS: Production and uses of sugar and syrup (National Sugar Refining Co. of New Jersey); bees in a glass hive (W. F. Straub Laboratories); mining and manufacturing of salt, contrasted with methods of evaporation of salt from sea water (Morton Salt Co.); miniature biscuit factory (National Biscuit Co.); story of food products told on a revolving stage, with additional displays of quick-frozen foods (General Foods Sales Co., Inc.); eight full-sized kitchens, seven old-fashioned, and the eighth a modern apartment-house type (H. J. Heinz Co.); miniature brewery (Atlas Brewing Co.); how soil and plants are tested for fertility (Urban Laboratories); "rainbow corn" in a growing exhibit (Harvey J. Sconce).

LIVESTOCK AND MEAT SECTION:

(In center wing): Comparison of 19th century cattle with 20th century herds; model stockyards; illustration of the value of meat in the diet; retail meat store with walk-in cooler; how meats are distributed and handled; large cooler, where processes of preserving and cutting meat are shown; refrigerator car and refrigerated meat truck—all prepared by the Committee on Livestock and Meat Exhibit.

Dairy Building

Admission free

LOCATION: On Northerly Island, just south of 12th St. Bridge, facing on the North Lagoon.

CENTRAL EXHIBIT is the Clavilux, or color organ, which "plays" colors instead of music, throwing the changing tints on a large screen. A peasant drama of the dairy industry is presented in the central amphitheater, which houses the organ.

SECTIONS OF THE BUILDING: Industry Hall and Commodity Hall are two wings opening off the central lobby.

INDUSTRY HALL EXHIBITS: Effect of dairy products on human physical and mental powers, as shown by a group of figures representing childhood, youth, prime, and maturity; a transparent mechanical reproduction of a cow, actually functioning and giving milk.

COMMODITY HALL EXHIBITS: Preparation of ice cream, cheese, butter, milk, and dry milk; transportation and preservation of milk.

DAIRY RESTAURANT overlooks the lagoon. Next to the restaurant are club rooms for members of the Century Dairy Club.

Illinois Agriculture Building

Admission free

History of midwest farming, and the work done by the state agriculture department; production, processing, and use of the soy bean.

Horticultural Building

Admission: Adults 25 cents, children 15 cents, children with adults free

Contains garden dioramas representing all climates, and built with actual vegetation.

LOCATION: On Northerly Island, immediately overlooking the South Lagoon, just south of the Enchanted Island.

SOME OF THE DIORAMAS: Tropical scene, fern rockery, Italian formal gardens, Michigan snow scene, desert panorama, rose garden, 16th century interior with an old style garden.

OUTDOOR AREA: Surrounding the building are 25 gardens, contributed by various botanical and garden organizations. These include a Japanese garden (Fleming Landscape Co.); an extensive rose garden (Interstate Nursery); prairie flowers surrounding a log cabin; a forest preserve garden; a California mission house and garden; and an old mill stream.

Adler Planetarium

Admission 25 cents

Built by: Max Adler

Contains one of the two Zeiss projectors in the world, by means of which a complete illusion of the heavens, with movements of heavenly bodies, is produced hourly inside the dome.

LOCATION AND DESCRIPTION: North end of Northerly Island. It is a 12-sided building surmounted by a

large dome. Signs of the zodiac and inscriptions decorate its exterior walls.

POINTS OF INTEREST: Every hour, a complete panorama of the skies is thrown on the dome over the central hall by the Zeiss projector, showing more than 4,500 planets, planetoids, and stars in their orbits. In addition, visitors may see how the heavens looked at any time in history.

Exhibits in the surrounding corridor: An astronomical museum and library, housing scientific instruments of the past (mainly from the Italian Strozzi family collection), a model of the late Albert Michelson's rotating prism with which he showed the velocity of light, and a demonstration of how light from the star Arcturus was used to light the Fair.

What to See At the Fair

This is the third and concluding installment of a condensed guide to important exhibits at A Century of Progress exposition, the 1933 World's Fair in Chicago, and where to find them.

Because the Fair is so vast and bewildering an assemblage of remarkable sights, many visitors with only a few days to spend there leave feeling that they probably have missed what they would have enjoyed most.

This summary is intended as a time-saver and aid to hundreds of members of the refrigeration industry who are pouring through the gates of A Century of Progress.

Chicago Art Institute

Admission: 25 cents; lower galleries free.

Official art building of the World's Fair. Contains a loan collection of masterpieces of paintings (valued at \$75,000,000), sculpture, and the graphic arts in addition to its own permanent collection.

LOCATION AND DESCRIPTION: North of the Fair grounds, Michigan Blvd. at Adams St. The loan exhibition of paintings, on the second floor of the building, has been contributed from museums and private collections throughout the country, with one picture—that of Whistler's Mother—from the Louvre in France. It is estimated that this is the finest collection of paintings yet exhibited to the American public.

TEN MOST "SIGNIFICANT" PICTURES according to the director of the institute, Robert B. Harshe, are "Portrait of Catherine Howard," Hans Holbein; "Venus and the Lute Player," Titian; "Assumption of the Virgin," El Greco; "The Merry Lute Player," Frans Hals; "Isabella, Wife of Philip IV of Spain," Velasquez; "Aristotle and the Bust of Homer," Rembrandt; "La Toilette de la Marée," Gustave Courbet; "Portrait of My Mother," James Whistler; "Canoeists' Breakfast," Auguste Renoir; "Un Dimanche sur la Grande Jatte," Georges Seurat.

DIVISIONS: The paintings are arranged chronologically from the 13th century up to the present time. Three time divisions are indicated: 1. Early Renaissance period through the 18th century; 2. The last 100 years; 3. Modern and contemporary art, especially American paintings.

AMONG THE PAINTINGS:

German & French primitives (13th century); Jean Clouet—Charlotte of France; Holbein—Portrait of Catherine Howard; Corneille de Lyon.

Flemish & Dutch primitives: Rogier van der Weyden (two pictures); Jacob Cornelisz van Amsterdam—Holy Family; Memling—Madonna; Peter Christus—St. Jerome; Geraerd David; Lucas van Leyden.

Italian primitives (four galleries): Giovanni de Paolo; Segna—Madonna and Saints; Masolino—Crucifixion; Sassetta—Procession of the Magi; Giovanni Bellini—Madonna; Gentile Bellini (two Oriental heads); Cimabue; Sandro Botticelli—Madonna and Child; Adoration with Angels; Portrait of a Young Man; Pollaiuolo—Rape of Deianira; Bernardo Daddi—Vision of St. Dominic; Piero di Cosimo—Lady with Rabbit; Maestro del Bambino Vispo—Death of a Virgin; Ghirlandaio.

Spanish primitives: Ayala altarpiece, circa 1396; Master of St. George—St. George and the Dragon.

Sixteenth century Italians: Raphael; Titian—Venus and the Lute Player; Tintoretto—Christ Walking on the Waves; Veronese—Rest on the Flight into Egypt; Tiepolo; Guardi; Canaletti; Magnasco; Mola; Pizzetta.

Sixteenth and 17th century Dutch: Rembrandt—Aristotle and the Bust of Homer; Jan Vermeer or Jacobus

Ochtervelt—The Musicians; Van Dyck—Polixena Spinola; Pieter de Hooch—Skittle Players; Frans Hals—The Merry Lute Player; Hobbema and Ruisdael landscapes; Lucas Cranach the Elder (German)—Portrait of the Prince of Saxony.

Sixteenth, 17th, and 18th century Spanish: El Greco (11 paintings)—Assumption of the Virgin, View of Toledo; Goya—Capture of the Bandit by the Monk, The Boy on the Ram, The Bull Fight; Velasquez (three pictures)—Isabella, Wife of Philip IV of Spain; Ribera; Zurbaran; Morales.

Seventeenth century England: Gainsborough—Queen Charlotte; Constable—Stoke-by-Nayland; Reynolds—The Honorable Mrs. Watson; Raeburn; Lawrence; Romney; Turner; Bonington.

Seventeenth and early 18th century France: Poussin; Claude; Watteau; the two Le Nains; Boucher; Lancret; Pater; Chardin—The Industrious Mother; David—Mme. de Richmond and Her Son; Ingres—Mlle. Gonin.

Pre-Impressionist French, Barbizon School: Delacroix—Spring; Corot—View from Volterra, Junieuse, Interrupted Reading; Millet; Courbet—La Toilette de la Marée; Daumier—The Uprising, The Drinkers.

Impressionism and Post-Impressionism: Monet—Argenteuil; Degas—Carriage at the Races, Uncle and Niece, Jockeys; Manet—Christ Mocked, The Music Lesson, Boulogne Roadstead, Philosophers, Gare St. Lazare; Renoir—Canoëists' Breakfast, Moulin du Galette, The Bather, Diana the Huntress, Two Little Circus Girls.

Cezanne, the one-man show: Seventeen canvases of this "greatest painter of the century" are grouped together in one room, including particularly Still Life with a Clock, Road to Auvers, Still Life with Apples, The Card Players, and The Bathers.

Late 19th century, early 20th century French: Gauguin (13 pictures)—Tahiti Women and Children, Tahitian Mary; Seurat—Un Dimanche sur la Grande Jatte; Henri Rousseau; Matisse—White Plumes, Pont St. Michel, Decorative Composition; Picasso—Woman with a Fan, Woman in White, Figures in Pink; Henri de Toulouse-Lautrec—Au Moulin Rouge; Van Gogh—Room at Arles, Public Gardens, Sunset Over Ploughed Fields, Soleil du Midi, the Postman.

Early American: Copley; Stuart; Ralph Earl; Morse; Hesselius; Feke; Albert P. Ryder—Marine, Death on the Pale Horse, Diana's Hunt, Elegy in a Country Churchyard.

Nineteenth century American: Homer; Thomas Eakins—Addie, Music, The Patetic Song; John Singer Sargent—Mrs. Charles Gifford Dyer, Robert Louis Stevenson, Egyptian Girl; James Whistler—Portrait of My Mother, In the Studio, Southampton Waters, Nocturne; Mary Cassatt—At the Opera, The Toilet, Girl Combing Her Hair; Duveneck—Whistling Boy; Blakelock—Vision of Life; Inness—Coast of Cornwall, Storm, Moonlight on Passamaquoddy Bay; Prendergast; Twachtman; Davies; George Bellows—Mother, Stag at Sharkey's.

Twentieth century American: Alexander Brook—Children's Lunch; William Glackens—Chez Monquin; Edward Hopper—Automat; Bernard Karfiol—Nude; Lwon Kroll; John Sloan—Greenwich Village; Maurice Sterne—Afternoon at Anticoli; Grant Wood—American Gothic.

Contemporary American paintings are shown in seven galleries. In connection with this exhibit, contemporary work of artists of England, France, Czechoslovakia, Italy, Germany, Mexico, Norway, Poland, Russia, Spain, and Switzerland are displayed.

EXHIBITS OF SCULPTURE: Besides the Institute's collection, several pieces of privately owned sculpture have been loaned. Exhibits are in the first and second floor corridors, and in some contemporary galleries.

Sculptors represented include, among the Americans, Lorado Taft, Paul Manship, Stirling Calder, Charles Cary Rumsey, William Zorach; among the Germans, Di Fiori, Kolbe, Barlach, Lehmbrock, Belling; among the French, Rodin, Desplau, Maillo, Bourdelle, Poupelet; and from other countries, Miles, Mestrovic, Kai Nielsen, Epstein.

GRAPHIC ARTS DISPLAY: A history of the graphic arts, including prints by famous old print-masters, is located in the Print Galleries.

Of especial interest are early German woodcuts, printing of early Bibles, books printed with wooden type (15th century), work of Durer and Holbein, Italian niello prints, development of engraving in northern Europe; the art of etching, as shown in Durer's "Christ on the Mount of Olives," studies by Altdorfer and Hirschvogel; rise of lithography.

Foreign Villages and Exhibits

Belgian Village

Admission 25 cents

A sixteenth-century Belgian village, reproduced with accuracy.

LOCATION: Just south of 23rd St. entrance.

THINGS TO SEE: A sentry of Beffroi, guarding the entrance gate; an ancient cathedral, with a copy of the Ghent bell tower and a reproduction of Cardinal Mercier's mausoleum; model of a cannon made in 1450; real Belgian pigeons; a rathskellar; villagers in sixteenth-century garb (native Belgians, or of Belgian descent) occupied in making wooden shoes, jewelry, lace, tapestries, blown glass, etc.

Chinese Village

Admission: Chinese pavilion, free; Chinese theater, 25 cents.

Reproduction of a Chinese walled city.

LOCATION: North of 18th St. entrance, west of the Hall of Science.

CENTRAL EXHIBIT: A beautifully carved temple of jade 50 in. in height, made from a single block of jade weighing 18,000 lbs. This is exhibited in the Chinese pavilion for the first time, and is probably the most valuable art treasure at the Fair.

OTHER EXHIBITS: Chinese porcelain, lacquer wear, rugs, carved ivories, furniture, silks, perfumes, embroideries, food; in the theater, the Joy Fun Toy family of acrobats; relics found in connection with the discovery of the "Pekin man" who is supposed to have lived over 500,000 years ago.

Czechoslovakian Pavilion

Admission free.

Exhibits of Czechoslovakian products and industries.

LOCATION: North of the Hall of Science, across Lief Ericson Drive from the Italian pavilion.

Egyptian Temple

Admission free.

Exhibits of ancient and modern Egypt.

LOCATION: Between the picnic grounds on the Lake Michigan shore of Northerly Island, and the east side of the United States Government building. Built after the manner of traditional ancient Egyptian temples, the building is approached by an avenue of sphinxes.

EXHIBITS: How Egypt has developed under its new autonomic government; tourist attractions; relics from the Valley of the Kings.

Italian Pavilion

Admission free.

Story of Fascist Italy, including scientific discoveries in engineering, aviation, sociology, and government.

LOCATION: Southern end of the Avenue of Flags (Lief Ericson Drive), between the drive and the North Lagoon. The red-and-white Italian pavilion is constructed to symbolize a giant airplane, housing exhibits in its wings and central section. Rising at the front is a tower shaped like a bundle of lictor's rods and the mace, the symbol of Fascism.

EXHIBITS: Major part of the exhibits is devoted to modern Italy, and scientific advancements made in recent years—models of airplanes, illustration of how the Pontine marshes were drained, scientific farming, etc.

OTHER ITALIAN EXHIBITS: are to be found in the Adler Planetarium and the Hall of Science.

Japanese Pavilion

Admission free.

Exhibits of Japanese art and industry.

LOCATION: On 16th St., west of Hall of Science. Typical Japanese architecture is used in the pavilion, which is set in a Japanese garden.

INTERESTING EXHIBITS: Process of silk-making; miniature pearl and mother of pearl model of Mt. Vernon valued at \$500,000; displays of cloisonné, china, embroideries; Japanese etchings, wood carvings, and paintings; in western end, the development of the Manchurian Railway and its effect on the surrounding country; a Japanese tea garden in operation.

Lama Temple, or Golden Pavilion of Jehol

Admission: Adults 25 cents, children 10 cents.

Golden-roofed replica of the original lama temple at Jehol, considered the finest example of Chinese Lama architecture. The original was built in 1767, and has been carefully recreated under the direction of Vincent Bendix. No nails are used, the finished temple resembling a completed jigsaw puzzle with its interlocking sections. Chinese architects and painters were employed to insure faithful reproduction.

LOCATION: On 16th St., between the Hall of Science and the Japanese pavilion.

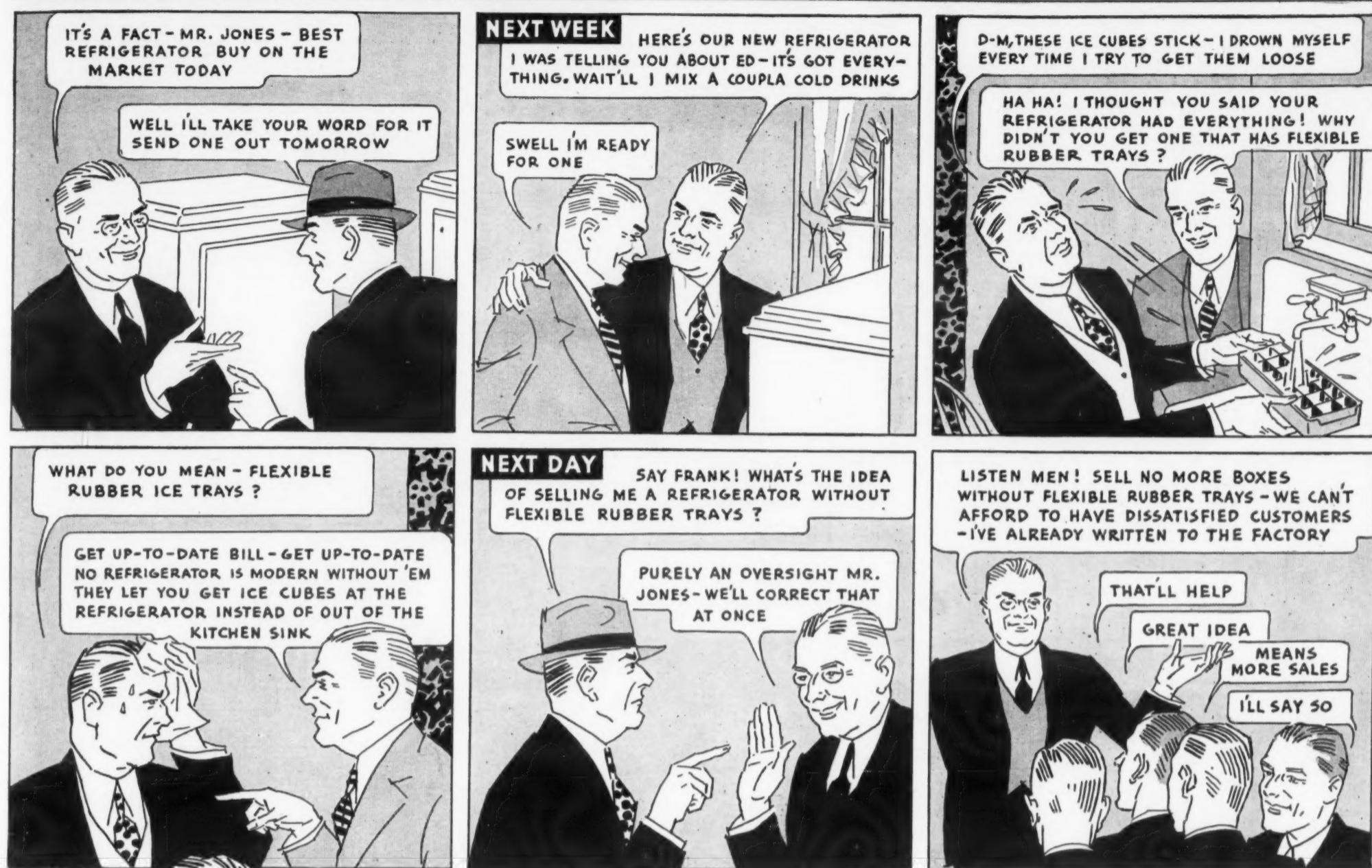
CONTENTS OF THE TEMPLE: A collection of sacred treasures used in Lama worship, including ornamental Buddhas, weapons effective in driving away evil spirits, an ancient prayer wheel, a temple drum made of human skulls, and historic incense burners.

Moroccan Village

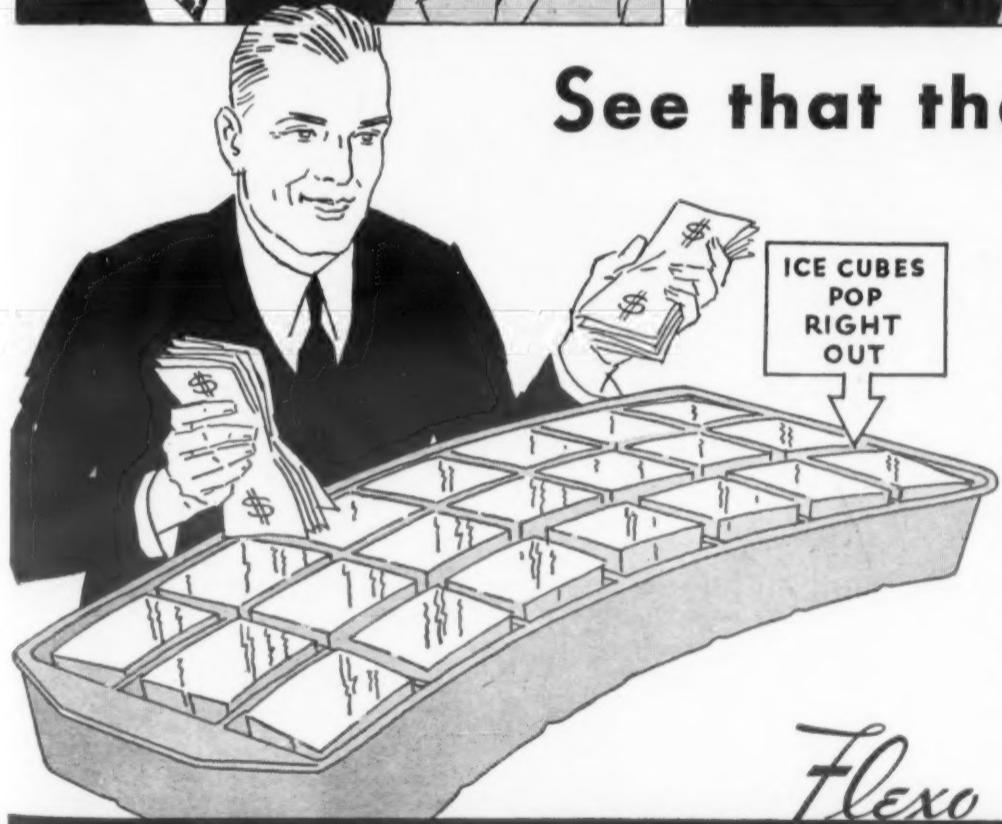
Admission free.

Copy of the Nunnery at Uxmal, in Yucatan; relic of the vanished Mayan civilization, contemporary with early Egyptian

FRANK ALMOST LOSES A SALE



See that the Refrigerator you sell is Strictly Modern



INSIST THAT IT BE EQUIPPED WITH FLEXIBLE RUBBER TRAYS AND GRIDS

Since it became the smart and ultra-modern thing to use Flexible Rubber Trays and Grids in mechanical refrigerators, *more than 2,000,000 have been sold*—all within three short years!

They are now used as standard equipment by Frigidaire, General Electric, Kelvinator, Westinghouse, and more than 40 other refrigerator manufacturers.

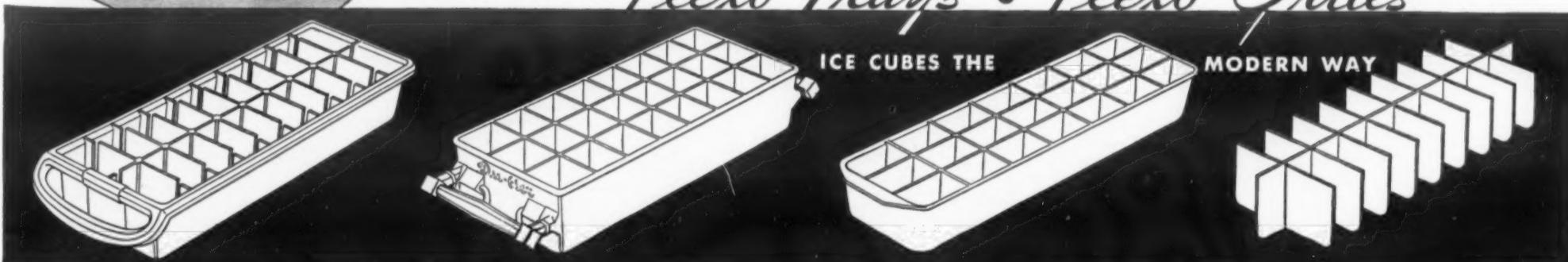
No refrigerator can be called really modern without the ice cube convenience of these time and trouble savers. That's why more and more people are insisting that Flexible Rubber Trays and Grids be

included with the refrigerators they buy.

If you want to cut down sales resistance—sell more refrigerators and accessories—increase profits—insist that Flexible Rubber Trays be included as standard equipment in all refrigerators you sell.

You can get full details by consulting the manufacturer of your refrigerator. Or, write direct to us. Whatever you do, don't overlook this opportunity for important extra profits. Stock Flexible Rubber Trays and Grids at once. The Inland Manufacturing Company, Dayton, Ohio.

Flexo Trays • Flexo Grids



Quickube tray

The Quickube Tray is made exclusively for Frigidaire. It releases ice cubes instantly—one at a time or a whole trayful—with just a slight pressure at the bottom of the tray.

Duflex tray

The Duflex Tray, made only for General Electric, combines flexibility with rigidity by means of stainless steel reinforcing bars. Cubes are instantly removed at a finger touch.

Flexo tray

The Flexo Tray shown here is a flexible rubber tray, used as standard equipment by Kelvinator, Leonard, Sparks-Withington, Mayflower, Williams, Apex, and many others.

Flexo grid

This newest Inland invention combines fast freezing with easy removal of ice cubes. They are now standard equipment on Frigidaire, General Electric and Westinghouse.

STATISTICS

New Data

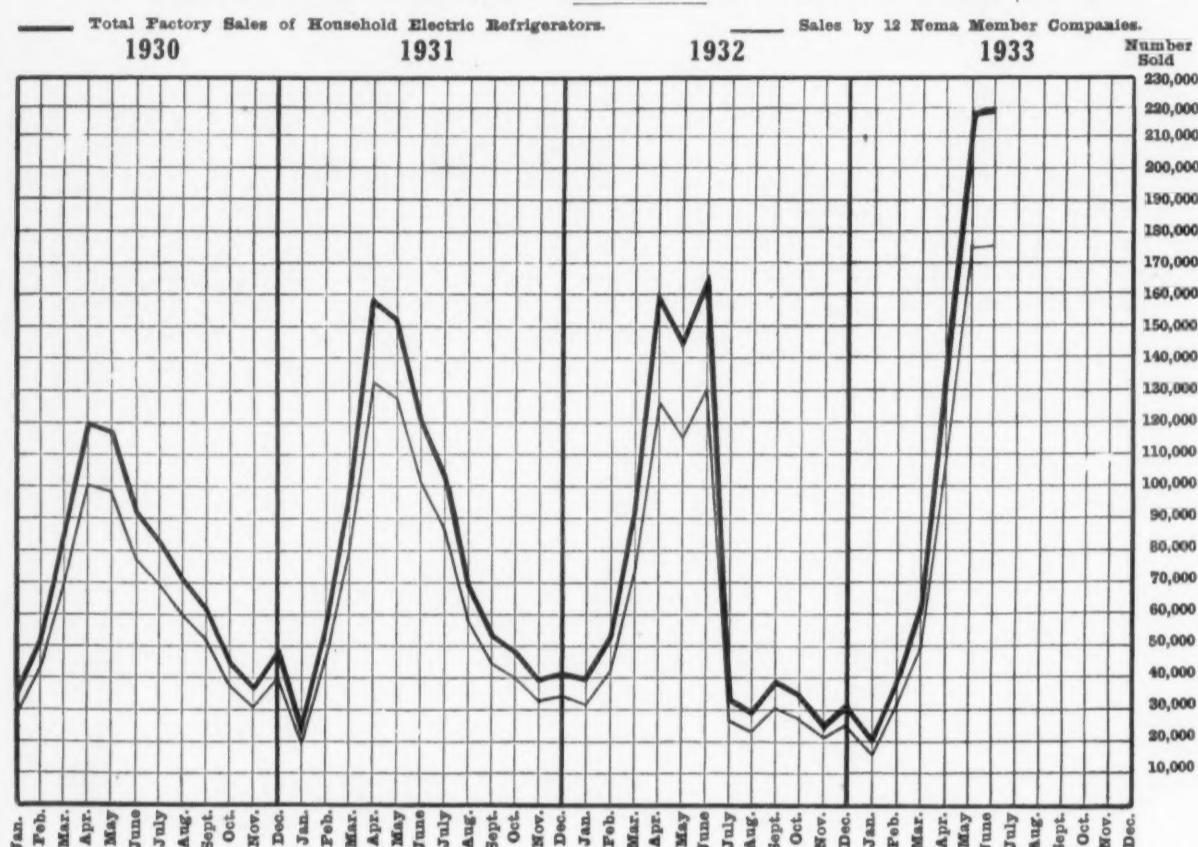
In addition to the regular monthly tabulation of the total sales by 12 manufacturers comprising the Refrigeration Division of National Electrical Manufacturers Association (Nema), new statistical data of unusual interest and value are presented in this issue.

For the first time the News has the privilege of publishing the detailed analysis of Nema figures as compiled by Louis Ruthenburg, consultant of the Nema Refrigeration Division. Heretofore this monthly analysis has been available only to the member companies.

4-Year Record of Monthly Sales

	1930	1931	1932	1933
January Totals	34,000	22,700	39,400	20,400
Nema only	28,356	18,917	31,527	16,351
February Totals	51,000	54,700	52,600	39,000
Nema only	42,362	45,503	42,109	30,422
March Totals	84,500	94,600	91,500	62,300
Nema only	70,291	80,320	73,215	49,823
April Totals	121,000	159,300	156,300	134,000
Nema only	100,500	132,414	126,620	107,182
May Totals	118,500	153,500	144,200	218,900
Nema only	98,621	127,671	115,348	175,119
June Totals	93,000	122,300	163,300	219,400
Nema only	77,174	101,492	130,607	175,550
First Six Months Totals	502,000	608,000	649,300	693,000
Nema only	417,304	506,317	519,426	554,417
July Totals	83,000	103,800	33,500	
Nema only	69,506	86,419	26,794	
August Totals	72,000	68,800	28,900	
Nema only	59,680	58,021	23,124	
September Totals	62,500	53,200	38,100	
Nema only	51,969	44,262	30,613	
October Totals	45,000	46,100	34,100	
Nema only	37,576	39,999	27,294	
November Totals	37,000	39,000	26,300	
Nema only	30,777	32,579	21,029	
December Totals	48,500	41,500	30,100	
Nema only	40,238	34,455	24,078	
Nema only, annual total	707,050	802,356	672,258	
Annual Totals	850,000	965,000	840,300	

Household Refrigerator Sales Make a New Peak



June Sales and Stocks (Household and Commercial) Reported by 12 Manufacturers in Nema Group

Reported by Refrigeration Division of National Electrical Manufacturers Association. Member companies Copeland, Crosley, Frigidaire, General Electric, Gibson, Grigsby-Grunow, Kelvinator, Norge, Servel, Trupar, Universal Cooler, and Westinghouse.

HOUSEHOLD	U. S. A. INVENTORIES		
	World Sales	Factory, Branch, and Warehouse	Dealers and Distributors
Lacquer (Ext.) Cabinets with Systems			
1. Under 4.00 cubic feet.....	1,785	92,125	1,796
2. 4 to 4.99 cubic feet.....	61,253	3,662,045	1,796
3. 5 to 5.99 cubic feet.....	17,711	1,232,276	22,684
4. 6 to 6.99 cubic feet.....	33,803	2,700,093	8,015
5. 7 to 7.99 cubic feet.....	11,488	1,115,970	538,286
6. 8 to 9.99 cubic feet.....	1,595	189,003	1,546,852
7. 10 to 12.99 cubic feet.....	235	43,902	5,924
8. 13 to 16.99 cubic feet.....	68	13,939	2,770
9. 17 to 24.00 cubic feet.....	10	3,025	325,325
10. Total Lacquer	127,948	9,051,378	64,024
Porcelain (Ext.) Cabinets with Systems			
11. Under 4.00 cubic feet.....	221	12,052	7,754
12. 4 to 4.99 cubic feet.....	6,248	468,534	2,665
13. 5 to 5.99 cubic feet.....	3,874	349,267	1,982
14. 6 to 6.99 cubic feet.....	15,049	1,455,306	6,745
15. 7 to 7.99 cubic feet.....	13,395	1,586,829	913,111
16. 8 to 9.99 cubic feet.....	2,297	484,017	3,022
17. 10 to 12.99 cubic feet.....	1,258	203,708	412,609
18. 13 to 16.99 cubic feet.....	604	112,074	165,634
19. 17 to 24.00 cubic feet.....	91	23,837	84,564
20. Total Porcelain	44,037	4,845,623	51,888
Total Lines 10 and 20.....	171,985	13,897,001	7,706,644
Separate systems.....	2,657	121,996	10,157
Separate Household Low Sides.....	908	15,591	201,148
24. Total Lines 21, 22, and 23.....	175,550	904,413	187,998
25. High Sides Under 1/2 hp.....	1,554	77,292	6,745
26. Cabinets—No Systems	184	19,705	679,735
27.	12,977
28. Total Household	13,931,585	8,715,005	7,527,295
COMMERCIAL			
31. Water Coolers with High Sides.....	2,050	200,643	3,601
32. Water Coolers with No High Sides.....	98	4,912	5,703
33. Ice Cream Cabinets with High Sides...	1,045	141,885	2,787
34. Ice Cream Cabinets with No High Sides	808	97,286	3,474
35. Milk Coolers with No High Sides.....	1	150	7
36. Room Coolers with High Sides.....	1,296
37. Room Coolers with No High Sides.....	557	57,544	2,130
38. Extra High Sides, 1/2 hp. and Up.....	8,027	907,400	10,701
39. Total Lines 31, 33, 36, 38, and 42.....	12,461	23,890	1,212,304
40. Extra Commercial Low Sides.....	8,343	280,570	16,510
41. Miscellaneous Cases and Cabinets.....	127	32,239	471,712
42. Beverage Coolers ***	1,339	87,532	1,731
43. Total Commercial	1,810,161	4,075,382	1,223,968
44. Totals—Household and Commercial	15,741,746	12,930,387	8,752,863

*The total of the figures by sizes and kinds does not agree with the total figure shown, namely \$12,990,387, because of the failure to supply the detailed information by all companies.

The number of companies reporting inventories at factory, branches, and warehouses was 10. The percentage of total sales of these 10 companies was 95.1%.

**The number of companies reporting inventories of dealers and distributors was 9. The percentage of total sales of these 9 companies was 90.1%.

***Beverage Coolers with and without High Sides.

Ruthenburg Analyzes Industry's Progress as Shown by Statistics

By Louis Ruthenburg, Consultant to the Nema Refrigeration Division

Unit shipments in June established a new monthly high record for the industry—slightly higher than May, 1933, and 34.41 per cent above the same month last year and 72.69 per cent above the same month in 1931.

It should be noted, however, that dollar sales dropped as compared with unit sales in May, 1933, and despite the great increase in number of units shipped, dollars show an increase of only 2.94 per cent over June, 1932 and 5.27 per cent over June, 1931.

Perhaps this declining price tendency is more clearly illustrated by average unit prices which dropped from \$83.50 in May to \$79.36 in June. It is interesting to compare the average unit price of \$79.36 with the corresponding figure of \$103.63 in the

same month last year, and \$130.39 in June, 1931. Percentage-wise, average unit price has declined 23.42 per cent as compared with the same month last year, and 39.11 per cent as compared with June, 1931.

High volume in June places the industry slightly ahead of last year as far as unit shipments are concerned—the actual increase being 6.55 per cent. The increase in units for the year to date is 9.31 per cent ahead of the same period in 1931.

Cumulative dollar sales, however, are 15.11 below those for the same period last year, and 30.77 per cent below cumulative dollar sales for the corresponding period in 1931. Average unit price of \$82.12 for the cumulative

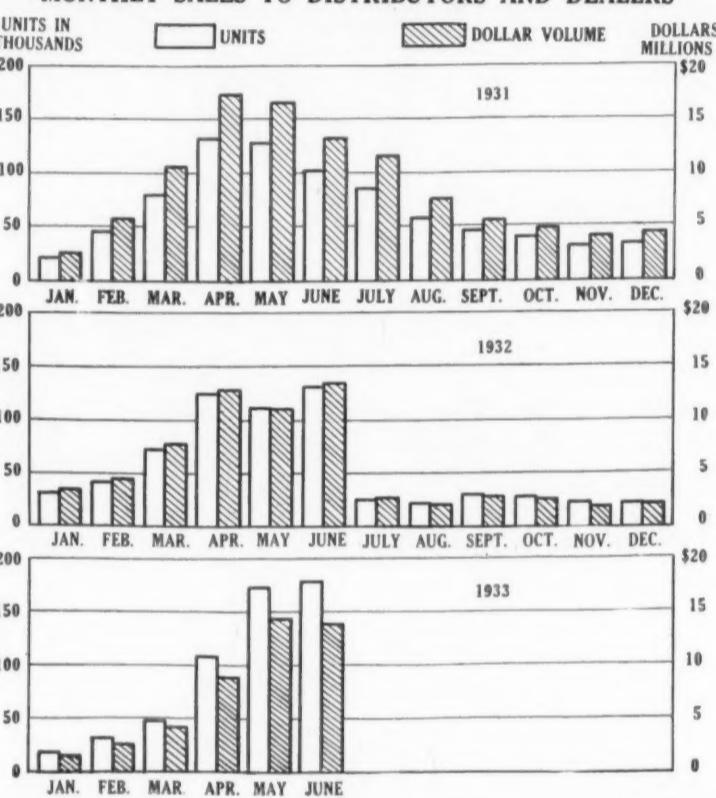
(Continued on next page)

Analysis of Quarterly Sales by Nema Group (HOUSEHOLD AND COMMERCIAL SALES BY 12 MANUFACTURERS)

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
1930	Units Dollars	21.25 21.96	39.77 42.41	24.60 22.76	14.38 12.86
1931	Units Dollars	18.91 17.39	44.55 40.69	23.27 20.72	13.28 21.21
1932	Units Dollars	22.40 23.76	53.75 53.76	12.97 12.89	10.89 9.59
Three Year Average	Units Dollars	20.85 21.04	46.02 45.62	20.28 18.79	12.85 14.55

Chart I

MONTHLY SALES TO DISTRIBUTORS AND DEALERS



ANALYSIS OF NEMA SALES AND PRODUCTION FIGURES

(Continued from previous page)
period is 20.33 per cent below average unit price for the same period last year, and 36.68 per cent below average unit price for the same period in 1931.

Commercial Business Improving

The commercial summary is encouraging. June commercial sales of 14,241 units represents a peak for the year, as well as an increase of 13.45 per cent over the corresponding month last year. As compared with the same month in 1931, commercial unit shipments declined 29.71 per cent.

The dollar figure indicates a substantial increase over May production, but indicates a decline in dollar value of 9.17 per cent as compared with the same month last year, and a decline of 40.17 per cent as compared with the same month in 1931.

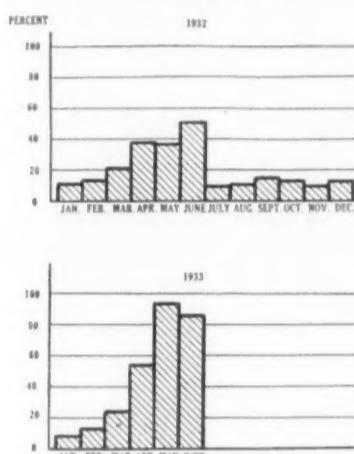
Average unit price increased from \$122.13 to \$127.11 as compared with May, 1933, but is 19.94 per cent less than the average unit price in June, 1932, and 14.88 per cent less than the average unit price in June, 1931.

Unit shipments for the year to date are 20.09 per cent below unit shipments for the corresponding period last year, and 53.39 per cent below cumulative shipments for the same period in 1931.

Cumulative dollar value is 41.11 per cent below that of the corresponding period last year and 65.04 per cent below the corresponding period in 1931.

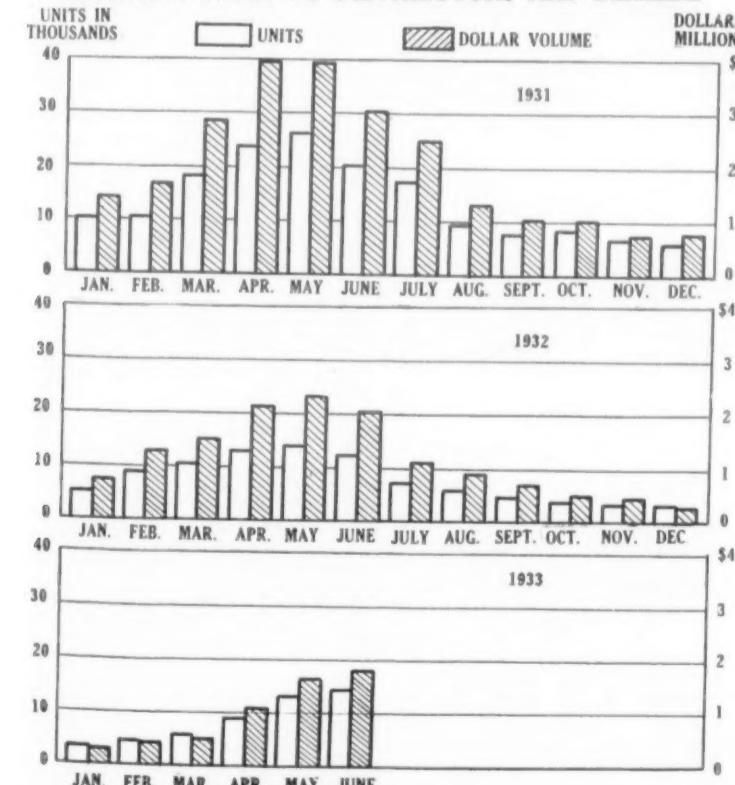
The average commercial unit price for the year to date is 25.37 per cent below that for the corresponding period last year, and 24.98 per cent below the average unit price for the corresponding period in 1931.

Chart III STOCK TURN-OVER



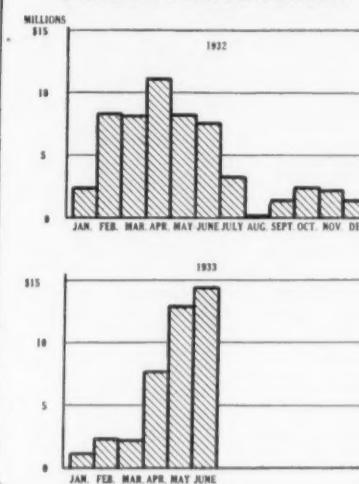
High production and low stock conditions in June, 1933, produced a turnover of 85.77% as compared with turn-over of 93.25% in May. While the June turn-over registers a decline as compared with May, it is still much higher than turn-over in any month last year, when the peak of turnover was attained in June at 50.82%.

Chart VI MONTHLY SALES TO DISTRIBUTORS AND DEALERS



Unit sales of commercial refrigeration in June represent an increase of 5.78% over sales in May, 1933. Average commercial unit price shows an increase of 4.08% over average unit price in May, and dollar sales for June are 10.08% ahead of May.

Chart IV INDICATION OF MONTHLY FACTORY PRODUCTION

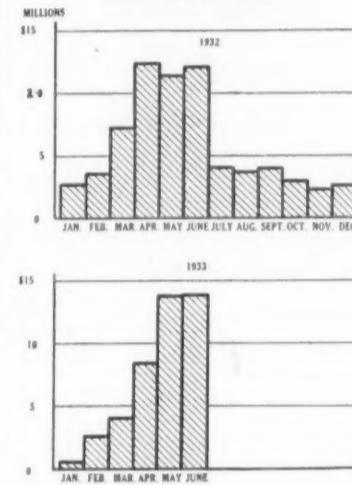


Inasmuch as factory stocks increased in June by \$389,944, the indication of factory production is higher than the monthly sales to distributors and dealers by that amount.

In June, 1933, the indication of factory production was \$14,321,529 as compared with \$7,649,189 in June, 1932—an increase of 87.22%.

Summarizing factory activity for the first half of the year, the total is \$41,556,720 as compared with \$49,095,153 in the corresponding period of 1932—a reduction of 15.36%.

Chart V INDICATION OF MONTHLY RETAIL SALES



Increase in distributor and dealer stocks in June amounted to \$171,578, which causes the indication of monthly retail sales to be below factory sales by a corresponding amount. In June, 1933, sales represent 31.46% of total sales for the calendar year. In June, 1932, sales were 23.80% of sales for the first six months.

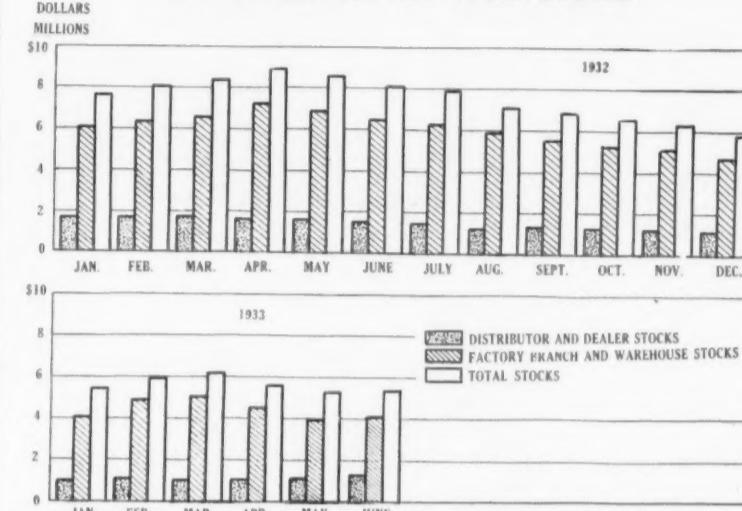
The cumulative figures for retail sales for the first half of 1933 are \$43,735,159 as compared with \$50,721,999 for the first half of 1932—a decline of 13.77%.

June, 1933 HOUSEHOLD	Current Month	Same Month 1932	Same Month 1931	% Change 1932	% Change 1931	Year to Date	Same Period 1932	Same Period 1931	% Change 1932	% Change 1931
Units	175,550	130,607	101,492	34.41	2.94	72.96	553,463	519,426	506,317	6.55
Dollars	\$13,931,585	\$13,534,676	\$13,233,938	5.27	5.27	\$45,453,205	\$53,543,072	\$65,656,662	-15.11	-30.77

June, 1933 COMMERCIAL	Current Month	Same Month 1932	Same Month 1931	% Change 1932	% Change 1931	Year to Date	Same Period 1932	Same Period 1931	% Change 1932	% Change 1931	
Units	14,241	12,552	20,261	13.45	-9.17	-29.71	51,203	64,890	109,859	-21.09	-53.39
Dollars	\$ 1,810,161	\$ 1,992,824	\$ 3,025,599	-40.17	-40.17	\$ 5,943,535	\$ 10,083,105	\$ 17,000,126	-41.11	-65.04	

Average Unit Price	\$ 79.36	\$ 103.63	\$ 130.39	-23.42	-39.11	\$ 82.12	\$ 103.08	\$ 129.68	-20.33	-36.68

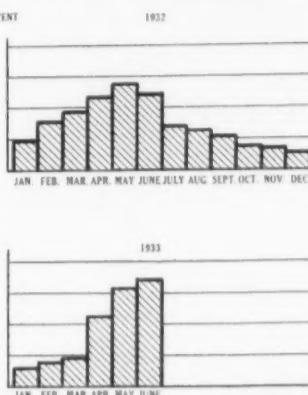
Chart VII DISTRIBUTOR AND DEALER, FACTORY, BRANCH AND WAREHOUSE AND TOTAL STOCKS



After declining steadily for two months, commercial stocks show a slight increase in June as compared with May. Dealer stocks increased by 6.47% and factory stocks by 37.89% below those of the corresponding month last year.

Commercial stocks, however, are far below stocks carried in June, 1932—distributor and dealer stocks being 23.72% less and factory stocks being 37.89% below those of the corresponding month last year.

Chart VIII STOCK TURN-OVER



Turn-over of commercial stocks in June showed a very healthy tendency, increasing from 31.75% in May to 34.16% in June. The best turn-over of commercial stocks attained in 1932 was 26.9% as of May.

See Page 6, Column 3, for continuation of Mr. Ruthenburg's Analysis of Nema Sales and Production Figures.

HERE'S THE DOOR TO GREATER PROFITS



The SHELVADOR

U. S. PATENT 189892

This new and exclusive patented feature is the most sweeping victory in the field of electric refrigerator sales.

The Shelvador doesn't need explaining. One glance and the story is told. What a show-room and show-window feature!

With the Shelvador you're a mile ahead of competition. You have something every housewife wants in her new electric refrigerator or sorry she hasn't in her present one. Increases "Usable" Capacity 50%

Shelvador actually makes the "small" refrigerator "larger" by increasing the "usable" space. It saves the annoyance of "feeling around" for small, hard-to-find objects . . . puts them where they are easily reached.



MODEL D-35 NET contents — 3½ cubic feet. Shelf area — 8 squarefeet. Overall Dimensions: Height, 50½"; Width, 23½"; Depth, 24". Leg Height, 10½". No. ice trays, 2; No. ice cubes, 42.



MODEL D-45 NET contents — 4½ cubic feet. Shelf area — 10.6 squarefeet. Overall Dimensions: Height, 50½"; Width, 23½"; Depth, 24". Leg Height, 10½". No. ice trays, 3; No. ice cubes, 63.



MODEL D-60 NET contents — 6 cubic feet. Shelf area — 15 squarefeet. Overall Dimensions: Height, 57½"; Width, 29½"; Depth, 25½". Leg Height, 10½". No. ice trays, 3; No. ice cubes, 63.

ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE

Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.
The Crosley Radio Corporation - Cincinnati
POWELL CROSLEY, Jr., President

Home of "the Nation's Station"—WLW

CROSLEY REFRIGERATOR WITH SHELVADOR
U. S. PATENT 189892

EMERSON ANNOUNCES NEW MOTORS LINE

ST. LOUIS—Emerson Electric Mfg. Co. here is introducing a new line of high-torque, capacitor motors particularly adaptable for use in household refrigerators and oil burners.

The new motors have the basic design of Emerson's low-torque, fan-duty capacitor motors, but embody a number of refinements.

They have an overload capacity in excess of 100 per cent, Emerson engineers say. Air gap tolerances have been made closer than in former models, and patented resilient spring and rubber base mountings are employed to reduce vibratory noises.

These units have over-size oil reservoirs, with wool-packed bearing assembly. Direction of rotation of the motors is clockwise, but may be reversed by reconnection of the leads provided for this purpose.

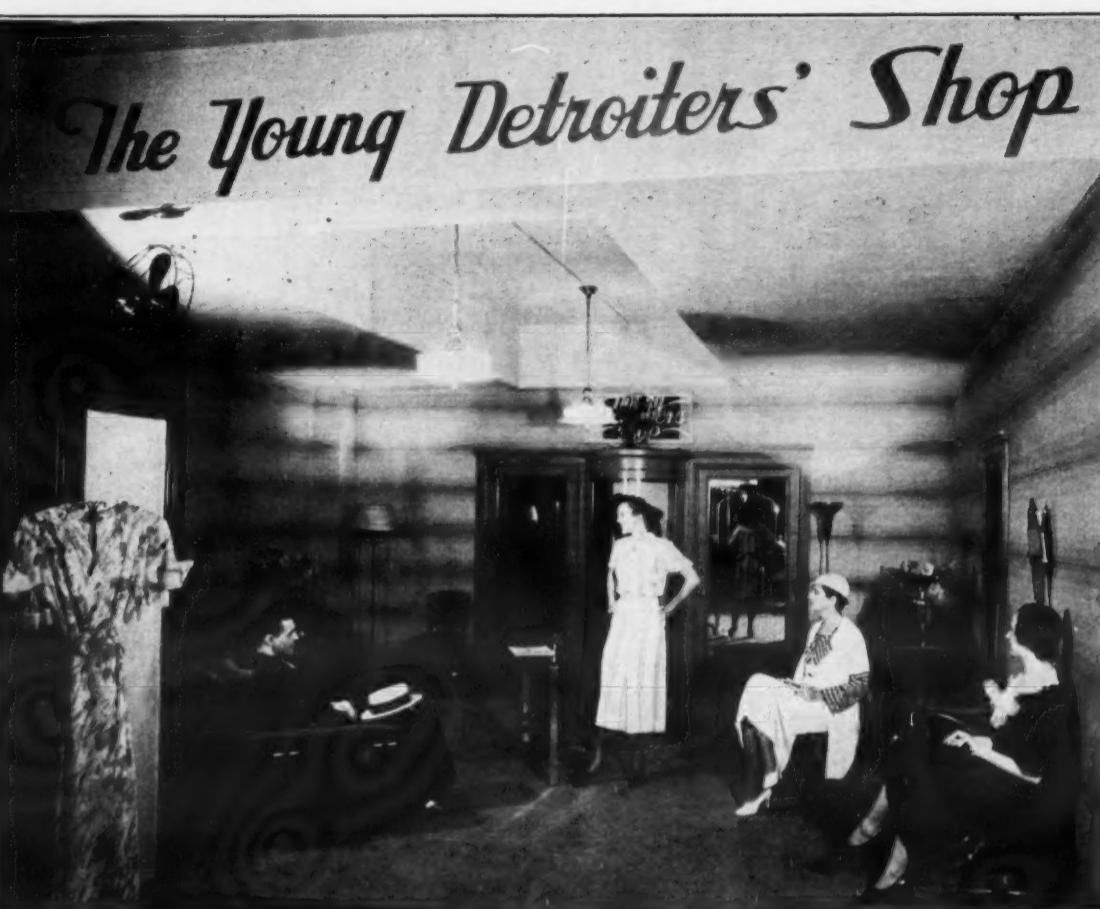
Frames are interchangeable for alternating and direct current. Flush bosses on covers permit mounting motors to blower housing. The condenser is mounted on top of the motor.

The new Emerson motors are available in sizes of $\frac{1}{2}$ to $\frac{1}{2}$ hp. with resilient or rigid mountings and are designed to avoid radio interference during operating periods.

G-E ENGINEER KILLED IN TRAIN CRASH

SCHENECTADY, N. Y.—Frank W. Peek, Jr., chief engineer of the Pittsfield, Mass., works of the General Electric Company and one of the company's specialists in high-voltage work, was killed July 26 when his automobile was struck by a train near Gascons, on the Gaspe peninsula of Canada.

Smart Apparel Show Installs Air Conditioning



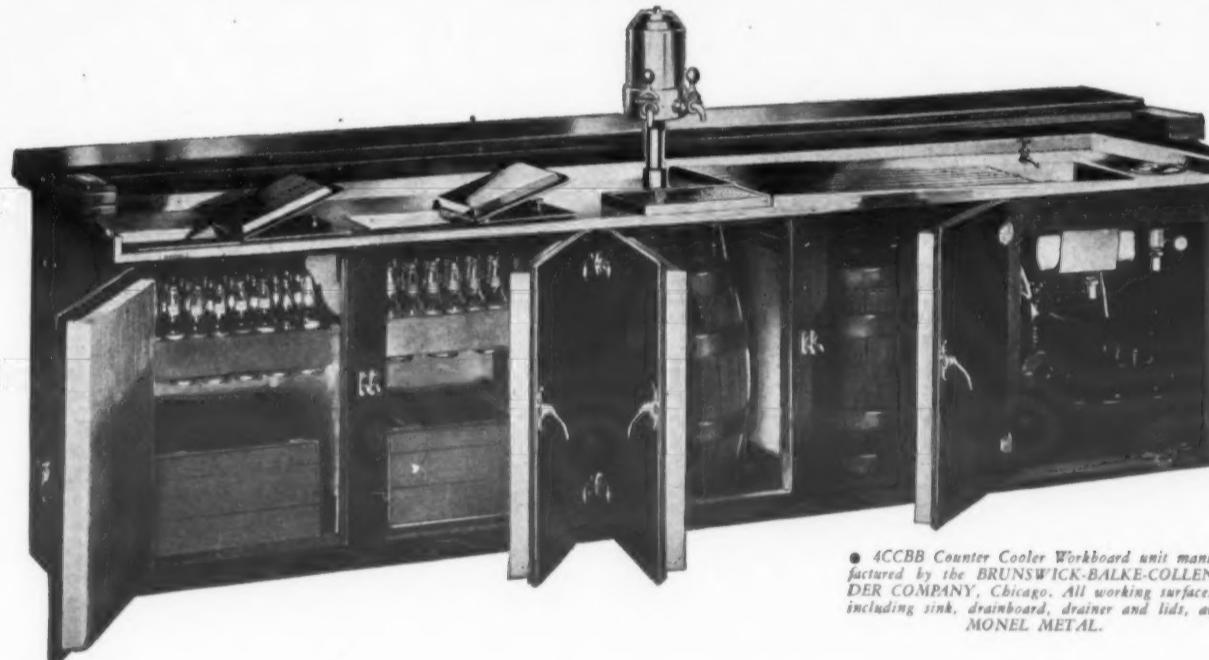
Frigidaire air conditioning cools the once torrid Russek's gown shop in Detroit. The shop is equipped with two 3-ton store-cooling units and two floor-type cabinets. One 10-ton compressor serves the coolers.

Brunswick

BEER SERVICE FIXTURES

...all working surfaces

100% MONEL METAL



• ACCBB Counter Cooler Workboard unit manufactured by the BRUNSWICK-BALKE-COLLENDER COMPANY, Chicago. All working surfaces, including sink, drainboard, drainer and lids, are MONEL METAL.

Brunswick-Balke-Collender Company know their beer service...and well they should, having been the world's largest bar-builders in pre-Volstead times.

Today Brunswick beer service fixtures are 100% modern...in design, in styling, and in fittings. And their metal working surfaces are all 100% Monel Metal!

Present day permit-holders

know that beer sales are soon going to depend to a great extent on SERVICE, with all that much-abused word actually means. Beer must be properly cooled. It must be served promptly. Everything that touches it must be scrupulously clean.

THE INTERNATIONAL
NICKEL COMPANY, INC.
67 Wall St., New York, N. Y.



Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

See how Monel Metal meets these needs. It is modern. Its spotless, gleaming, silvery surfaces bespeak utter cleanliness. It is easy to keep clean. There's no surface coating to wear off. Monel Metal is solid metal, and solid value, clear through.

Nema Distribution Of June Sales By States

STATES and Territories	Quantity of HOUSEHOLD Low Sides
Connecticut	2,458
Maine	900
Massachusetts	7,490
New Hampshire	657
Rhode Island	1,783
Vermont	443
New England Total	13,708
Delaware	344
Maryland & D. C.	6,507
New Jersey	7,393
New York (State)	27,778
Pennsylvania	18,249
Eastern Total	60,371
Kentucky	2,688
Ohio	12,569
West Virginia	3,202
East Central Total	18,749
Alabama	1,063
Florida	1,189
Georgia	1,943
North Carolina	2,356
South Carolina	874
Tennessee	1,248
Virginia	2,948
Southeastern Total	11,610
Illinois	11,839
Indiana	5,057
Michigan	6,024
Wisconsin	2,333
Great Lakes Total	26,355
Minnesota	2,278
North Dakota	349
South Dakota	476
North Central Total	3,103
Iowa	2,793
Kansas	2,335
Missouri	6,986
Nebraska	1,514
Middle West Total	13,626
Arizona	215
California	7,224
Nevada	442
Pacific Coast Total	7,581
Idaho	506
Montana	645
Oregon	1,208
Utah	1,195
Washington	1,150
Northwestern Total	4,706
Colorado	1,523
New Mexico	266
Wyoming	275
Rocky Mountain Total	2,074
Arkansas	884
Louisiana	1,089
Mississippi	419
Oklahoma	2,026
Texas	5,539
Southwestern Total	9,057
Total United States	170,736
Total Canada	1,388
Other Foreign (Including U. S. Possessions)	3,908
Total for World	176,012

PLANE CARRIES CONTEST WINNERS ON FAIR TRIP

OKLAHOMA CITY—A special plane carried Southwestern district winners in General Electric Co.'s recent Man Hunt sales campaign to A Century of Progress in Chicago where all Man Hunt quota busters were guests of G.E. July 20 and 21.

Included in the party were Albert Ahrens, Oklahoma City and Tulsa G.E. distributor, who won the Southwestern district award for getting dealers early in the Man Hunt contest; R. S. Maxwell and R. V. McKee, prize winners in the Man Hunt; and Mr. Ahrens' two sons.

LEONARD DEALER USES LIVING ADVERTISEMENT

HAZLETON, Pa.—A national advertisement, used last winter by the Leonard Refrigerator Co., came to life here recently.

The advertisement showed a woman walking down the street, dishes in either hand, illustrating the company's claim that the Len-A-Dor, foot pedal opener, was a step-saver.

Oscar's Radio & Electric Shop, Leonard dealer here, saw an opportunity for more promotion in connection with this illustration.

The company reproduced the advertisement in action. He placed dishes in the hands of Miss Marie Nelson, home economics expert of the Klein Stove Co., Leonard distributor in Philadelphia, sent her out in the main street of the town when traffic was at its height, and had the mayor escort her from the Grand Theater to the store.

TYROL ADDRESSES MAJESTIC DEALERS IN OHIO

CHICAGO—Jacques Tyrol, sales counselor for the Grigsby-Grunow Co., continued his series of sales talks to dealer groups during the past week in Columbus and Cincinnati.

In Columbus, Charles T. Naddy Co., Majestic distributor, acted as host to 100 dealers to whom Mr. Tyrol spoke on good and bad practice in retail selling.

In Cincinnati, Schuster Electric Co., Majestic distributor there, entertained more than 100 dealers and salesmen at the country home of J. E. Schuster, where Mr. Tyrol spoke in the evening.

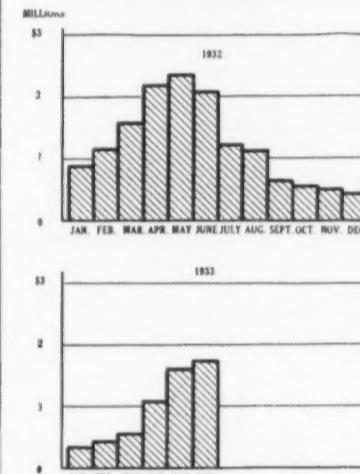
Mique Schoenly, district factory representative who arranged the meetings, spoke briefly at each.

Ruthenberg's Analysis of Nema Statistics

(Concluded from Page 5, Column 5)

Chart IX

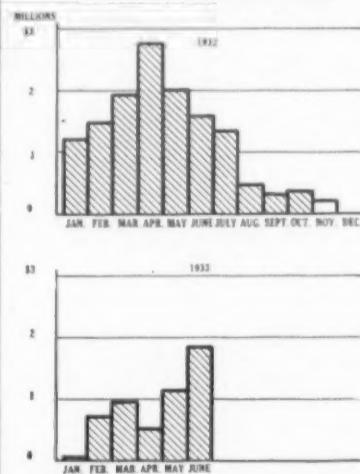
INDICATION OF MONTHLY RETAIL SALES



Indication of monthly retail sales for June is \$1,735,698, which represents an increase of 7.96% over May and a decline of 16.17% as compared with the same month last year.

Chart X

INDICATION OF MONTHLY FACTORY PRODUCTION



Indication of factory production for June of \$1,856,351 is most encouraging in view of the low indications of factory production during the first five months of the year. This figure represents an increase of 60.50% over factory activity indicated in May, and an increase of 241.64% over the very low activity indicated in April.

It will be recalled that April was the month in which stocks were corrected at the expense of factory production, even though sales indication was quite high as compared with the preceding months of the year.

BEER COOLING

AIR SPACE USED TO INSULATE BEER KEGS

LANSING, Mich.—When beer became legal the shortage of wooden beer barrels prompted the Motor Wheel Corp. to design a steel barrel which has just gone into production for sale under the trade name Duct Steel. The company is using production equipment used in making automotive products to make the new barrels.

In the old beer days, figures show, there were in the neighborhood of 22,000,000 wood barrels in use. This supply is said to have shrunk to something less than 10,000 when 3.2 beer came in.

The barrel which Motor Wheel has produced matches the strength and insulating factors of the wooden container by being designed as a double-walled barrel, or a barrel within a barrel. The outer casing of the barrel follows the general lines of the conventionally shaped barrel, but the inner shell takes the form of practi-

Steel Beer Keg



Air space insulation and welded construction are shown in this cutaway.

cally a perfect oval or oblong spheroid. This shape in itself furnishes a natural strength factor, but the real major strength of the complete barrel results from contact points which are strategically located between the outer and inner shells. These points are so arranged that they form the equivalent of three-point truss bracing, such as is employed in the steel cantilever bridge or steel construction in skyscraper office buildings.

Between the outer and inner barrel units, are provided by the variation in relative shapes, dead air spaces to serve as insulation.

Material used for both the inner and outer barrel units is open-hearth, hot-rolled, deep-drawing .8-.12 carbon strip steel. Continuous arc welding is employed in joining the pressed steel parts of which the barrel is built. Two halves are welded to form the inner unit complete before the outer casing, made of two end sections and a middle belt section, is placed about it and welded. After tap fittings are welded in, the inner shell is tested under water with 25 pounds of air pressure to prove its airtightness.

To strengthen the chime, or end rim, a quarter-inch ring, or hoop, is welded within it. In all major details the Duo-Steel barrel is adapted to standard methods of rolling, racking, stacking, cleaning, pitching, filling and other forms of handling. It will accommodate standard types of fittings.

Russ Beer Equipment Distributors Named

CLEVELAND—Five new distributors of Russ beer dispensing equipment have been appointed by the Russ Soda Fountain Co. here. They are:

Beecher-Cumming Co., Minneapolis; Buffalo Bottle & Cork Co., Buffalo; Hardware & Supply Co., Akron, Ohio; Howard Store Fixture Co., Baltimore; and K. B. Noble Co., Hartford, Conn.

50 G.E.'S INSTALLED IN APARTMENT HOUSE

WASHINGTON, D. C.—Replacing a multiple system, 50 model S-44 General Electric refrigerators have just been installed in the Army & Navy Apartments here.

National Electrical Supply Co., local G. E. distributor, made the sale.

Seeger To Increase Prices on All Beer Coolers

ST. PAUL—Prices on the Seeger line of beer-cooling equipment were to be advanced Aug. 1, according to a communication recently issued to Seeger dealers and distributors by J. J. Leonard, sales manager.

Increases in the cost of raw materials and advances in wage rates in keeping with the policy inaugurated by the Federal administration has made necessary an increase in the price of Seeger beer-cooling equipment, Mr. Leonard declared in his communication.

BRUNSWICK-BALKE SHOWS OLD & NEW BAR FIXTURES

CHICAGO—Visitors to the General Exhibits building at the Century of Progress Exposition are given a graphic demonstration of the evolution of bar fixtures from the '90's to post-legalization 1933. The Brunswick-Balke-Collender exhibit displays one of the massive bars of the Columbian exposition period alongside one of its present-day models.

The exhibit also contains complete service units that are designed for club, home, hotel or restaurant use. To illustrate the products shown in the Brunswick exhibit, a volume entitled, "Brunswick Highlights," has been prepared.

WATER COOLING JOB USES UNIVERSAL COOLER UNITS

BATON ROUGE, La.—Refrigeration Sales & Service Co., Universal Cooler distributor here, has just installed a Filtrine model M-150-R water cooler with a Universal W-2003 (2 hp.) Universal condensing unit in the Louisiana State University's cafeteria. This water cooler has 150 gallons of storage capacity.

The circulating drinking water system is located in the basement under the main floor of the cafeteria, supplying water to two batteries of 18 glass-filling faucets located on the first floor, and one battery of 10 faucets on the second floor, according to K. C. Banfield, manager of the distributor's commercial department. A total of 46 faucets thus serve cold water to some 3,000 customers of the cafeteria three times a day.

A ½-hp. Gould circulating pump keeps the chilled water in motion through the 200 ft. of cork-insulated ice water supply and return lines. Drinking water is served at a temperature of about 45° F., with the compressor running less than one-third of the time, Mr. Banfield states.

ALLIED STORE UTILITIES REPORTS SALES INCREASE

ST. LOUIS—Allied Store Utilities Co., manufacturer of Hussman-Ligonier "Humid-I-Cooled" display case and refrigerator equipment, reports a 50 per cent increase in sales for the first six months of 1933 as compared to the corresponding period in 1932, according to announcements made by factory officials.

Two new distributors for the Hussman-Ligonier line have been announced. C. P. Bush will have the agency for the line in the Columbus, Ga., territory, and John Roehlk will handle Hussman-Ligonier equipment in Des Moines, Ia., and surrounding territory.

Show Aids Lancaster Kelvinator Dealer

LANCASTER, Pa.—Contacts made at a recent electric show here, at which all previous attendance records for automobile and electric exhibitions were shattered, resulted in sales of 20 refrigerators and 7 oil burners on the part of Landis Electric Co., Kelvinator distributor here.

GREENSPAN JOINS ALLIED STORE UTILITIES CO.

ST. LOUIS—B. A. Greenspan has been appointed southern sales manager of the Allied Store Utilities Co., and will have full charge of the company's sales of Hussman-Ligonier "Humid-I-Cooled" equipment and the line of Steiner electric products, in the territory comprising 14 states.

BEER IS PRE-COoled BY HUMIDRAFT UNIT

NEW YORK CITY—Brewery Restaurant at 407 E. 55th St. here, has installed Servel refrigerating equipment to cool the beer in its 7-tap draft beer dispenser, and to pre-cool keg beer stored in the basement.

The kegs are being cooled by means of a Servel Humidraft (forced convection) cooling unit located in a large storage cooler, which could handle 50 half-barrels of beer, if required to do so.

The Humidraft unit in the beer storage cooler is the second of its kind to be installed in this restaurant. A year ago Servel commercial sales engineers were called in to figure on the installation of mechanical refrigeration for a large food storage box. The fact that the box was barely 6 ft. high made an overhead coil and bunker impractical, so a Humidraft unit was installed.

The unit in the beer storage cooler is kept at 32° F. coil temperature. A Servel ½-hp. compressor is supplying the refrigeration for the Humidraft and also for the brine tank in the 7-tap beer dispensing cabinet in the main kitchen.

Servel to Be Sold in East Indies

EVANSVILLE, Ind.—Netherlands distributor for Servel refrigeration equipment is planning for its introduction in the Dutch East Indies, according to F. E. Sellman, vice president of Servel, Inc., here.

Holland franchise for the sale of Servel equipment is held by Messrs. Tadema and Pijtersen's Naatschappij Tot Verkoop Van Koelinstallaties N.V., with headquarters at Amsterdam.

CROSLEY BRINGS OUT NEW DRY-TYPE BEER COOLER

Gibson Beer Cooler Specifications

Principal feature of the Gibson cooler for bottled beer is the employment of forced air circulation in cooling. This is accomplished by means of an oscillating fan and a duct system within the cabinet. The cabinet is self-contained. Sides are finished in black lacquer, lids are covered with polished aluminum, and are of the top, hinged type.

Model No. BC-72

Overall Dimensions (in.)

Width	35
Depth	25
Height	34

Capacities

Total No. of 12 oz. bottles.....	72
No. of compartments in cooler.....	1
Size of refrigeration unit required (hp.).....	¼

Method of Cooling

Type of cooling employed.....	Dry type.
-------------------------------	-----------

Forced air circulation.....	
-----------------------------	--

Type of coil used.....	Finned tube
------------------------	-------------

Make of expansion valve.....	Detroit
------------------------------	---------

Lubricator.....	
-----------------	--

Refrigerant used.....	Methyl chloride
-----------------------	-----------------

Is brine tank for holdover provided.....	No
--	----

Insulation

Kind used.....	Balsam wool in sides and
----------------	--------------------------

Thickness in sides and ends (in.).....	2
--	---

Thickness in bottom (in.).....	3
--------------------------------	---

Thickness in top (in.).....	1½
-----------------------------	----

Drain

Are drain facilities standard.....	Yes
------------------------------------	-----

Is plumbing connection necessary.....	No
---------------------------------------	----

Materials Used for Construction

For exterior.....	Furniture sheet metal
-------------------	-----------------------

For interior.....	Galvanized iron
-------------------	-----------------

For shelves.....	Flat wire
------------------	-----------

For top or lid.....	Aluminum
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DETROIT MEN DESIGN NEW COIL CLEANER

DETROIT—The Beerite Visible Coil Cleaner, a beer coil cleaner employing a chemical compound, has been introduced by Industrial Chemical Products Co. of this city.

The cleaning apparatus consists of a glass container with a rubber hose connection. Beerite, the chemical compound used, is packed in a cloth bag, the chemical passing in solution through the meshes of the bag, thus preventing any lumps of the compound from lodging in the coil.

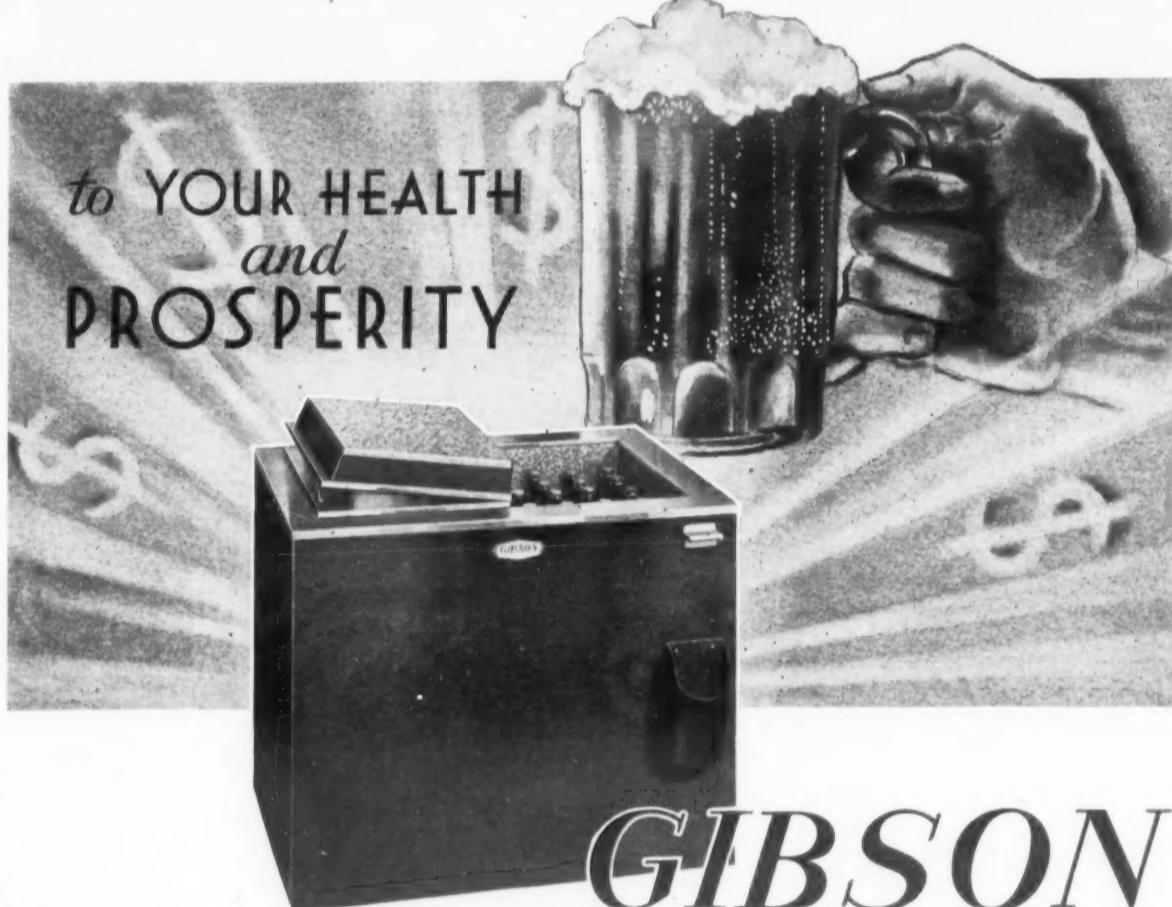
In operation, the hose is connected to a water faucet and water is forced into the container, where the solution is formed. Pressure of the water forces the solution through the beer coil down to the keg hose, where it is drained.

Beerite turns bright yellow when mixed with water, and as all the action takes place in the glass jar, the operator of the cleaning apparatus can readily see when all the compound has been dissolved.

Each bag of Beerite contains enough chemical compound for one cleaning. The bags are obtainable in carton lots.

Terpening Is Promoted By Merriam

SCHEECTADY, N. Y.—E. A. Terpening, formerly pilot of the General Electric sales coach for A. Wayne Merriam, Inc., G-E distributor here, has been promoted to the management of the distributor's new resale department. Warren J. Burns, Jr., of the retail sales staff has been selected as new pilot of the Aerocar coach.



BOTTLED BEER COOLER MODEL BC-72

Exterior Dim. 35" wide, 34" high,

25" deep.

Capacity—72 12 oz. bottles.

Compressor—1/4 hp. air cooled conventional type.

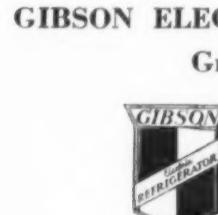
Cooling—Forced air circulation for rapid cooling.

Insulation—Sides and bottom 3",

top 1½".

Finish—Black lacquer body, polished aluminum top.

Shipping weight—310 lbs.



Gibson Electric Refrigerator Corp., Greenville, Michigan.

Please send me complete information on your new bottled beer cooler.

NAME

ADDRESS

CITY STATE

ENGLISH SELLING IS LIKE THIS COUNTRY'S

SELLING methods employed by American-controlled firms distributing electric refrigerators in England are patterned very closely after the latest methods used by sales organizations in this country, according to a recent article appearing in *Printer's Ink*.

For instance salesmen for English distributors of the B.T.H. refrigerator (General Electric) work on a canvass plan very similar to the "25 plan" which was employed by General Electric refrigerator distributors and dealers in this country last year.

Dealer franchises and sales organization set-ups are very nearly carbon copies of the American models.

George D. Riedel, president, Frigidaire, Ltd., the company which handles the Frigidaire export business, points out that although there is always some resistance to American methods, it is easy enough for the American manufacturer to disguise these and that when put in operation they work just as well abroad as they do in the United States.

Frigidaire Ltd., Mr. Riedel declares,

has 10 men who sell \$30,000 worth of home refrigeration in a year, a good amount in any country.

Owing to different standards of living, the market for domestic installations in the British Isles is much smaller potentially than in the United States.

International Refrigerator Co., Ltd., last year estimated that there were 600,000 prospects in Great Britain, Northern Ireland, and Irish Free State.

It based its figures on the number of families whose incomes are more than 500 pounds a year. The company, for instance, estimated only 66,000 prospects in London, 53,000 prospects in the County of Yorkshire, 48,000 in Lancashire, 7,000 in Edinburgh, 6,628 in Dublin, and 4,575 in Belfast.

LEONARD STARTS LARGEST ADVERTISING DRIVE

DETROIT — Leonard Refrigerator Co. here is now sponsoring the largest advertising campaign in its history to back up its midsummer sales campaign. All of the advertisements being used in newspapers and national magazines play up the fact that Leonard prices are to be increased Sept. 1, and that "now is the time to buy."

NEWSPAPER BACKS REFRIGERATOR WEEK

BUFFALO — July 24 and the five days following were Electric Refrigeration Week in this city, as a result of an advertising program sponsored during that period by the *Buffalo Times*, local newspaper.

The July 24 issue of the paper contained a 16-page two-color tabloid supplement which carried advertisements of most of the household refrigeration distributors and dealers in Buffalo.

Accompanying the display advertisements were numerous stories and articles on the use of electric refrigeration, cold cookery recipes, and general household hints.

Theme of the program was "Electric refrigeration pays for itself," and the backlog of this campaign phrase was publication of savings figures based on local rates—prepared by the research department of the Buffalo General Electric Co., utility here.

Windows and lobby of the *Buffalo Times* building were given over to displays of various makes of electric refrigerators, and outside street car cards were used to call attention to

this and other displays. Window posters were supplied by the paper to all distributors and dealers.

Another feature of the refrigeration sales promotion week was a cold cookery school held on Wednesday in the auditorium of the Buffalo General Electric Co. Building of the week's program and selling of the tabloid supplement was handled by Tom Dwyer, member of the general advertising staff of the *Times*.

PURODOR MFG. CO. MAKING CHEMICAL DEODORIZER

MAISON, Wis.—PurOdor Mfg. Corp. of this city is making a chemical block for absorbing food odors in electric refrigerators and ice boxes, and has established distributorships for the product in several of the country's key cities.

The PurOdor is made in several sizes, each of which is intended for use in a refrigerator of a certain food storage capacity. The PurOdor is made of activated carbon and a mixture of 10 mineral neutralizing salts, according to J. O. Bixby of the manufacturing company, who states that one of the bricks will give a year's service.

CHICAGO WESCO HAS NEW SALES CONTEST

CHICAGO—Westinghouse Electric Supply Co., operating six appliance stores here besides its Loop salesroom, is sponsoring a refrigerator sales contest among its six sales supervisors and their men to give localized selling incentive to the "Master Builders" contest being run on a national scale by Westinghouse Electric & Mfg. Co.

Quotas have been assigned to all men concerned with refrigeration sales, and cash prizes of \$50, \$30, and \$20 will be awarded to the three supervisors leading at the close of the competition. Every salesman who makes his quota will receive \$10, and the first to reach his quota will receive expense money for a day at the Fair, with a companion.

Each supervisor and his staff are pitted against the group from another of the stores. The contest setup is as follows: K. S. Crighton and staff vs. William Thuerk and staff; C. E. Nelson and staff against J. C. Peterson and staff; C. A. Jobst and staff vs. A. H. Hjelte and staff.

Special prizes will be offered during the contest, according to H. Ratcliffe of the Chicago Westinghouse organization, and four general meetings will be held during the campaign period.

PLANS UNDER WAY FOR NEW YORK WORLD'S FAIR

NEW YORK CITY—Plans for a world's fair to be held here in 1935 are now being developed by Frank P. Spellman, former president of the Outdoor Showmen of the World and a well-known promoter of major amusement events.

It is planned to start breaking ground for the New York world's fair April 1, 1934, according to Mr. Spellman.

Mr. Spellman also states that he has taken over the entire lower floor of the Hotel Astor for a miniature world's fair to be staged from April 1 to Sept. 1, 1934. Prior to this there will be four miniature fairs in the exposition hall of Madison Square Garden which will feature the products and industries of certain states.

Competent engineers, architects, and amusement men are being assembled to work out plans and to have the fair in April, 1935, Mr. Spellman states.

G-E, NATIONAL TEA CO. COOPERATE IN CONTEST

CLIVELAND—Specialty appliance sales department of the General Electric Co. here is cooperating with National Tea Co. food stores in Illinois, Michigan, Indiana, and Iowa in a sentence-building contest in which participants will submit slogans about National foods built from the letters in specified phrases concerning National products and General Electric refrigerators.

The contest is divided into two sections—one for the building of slogans about National groceries, the other for slogans concerning the company's meats. All participants are eligible to compete in both divisions. Included in the prizes which will be awarded when the contest closes on Aug. 5 are eight G-E refrigerators of various sizes.

Hatch Sells 20 Units To Win Contest

PHILADELPHIA—With sales of 20 Leonard electric refrigerators to his credit in the period June 5 to 30, F. E. Hatch captured first prize in a contest conducted by the Gimbel Brothers, Leonard dealer here.

Second prize went to J. W. Paxson, and third to H. D. Bilyeu. Salesmen Harry Sussman, A. H. Altman, and Robert L. Painter finished in a tie for fourth prize.

Nine Leonard Salesmen Get Contest Awards

KANSAS CITY—In a sales contest conducted recently by the Mace Ryer Co., Leonard distributor here, at three of its stores, nine salesmen won prizes.

The winners were as follows: Raymond White, Frank Harris, John Brazier, Albert Bell, George Likens, Frank Wolfskill, Gordon Jesse, H. O. Price, and C. H. Stober.

LEONARD DISTRIBUTOR FOR PHILLIPINES APPOINTED

MANILA, P. I.—Manila Installment Co. here has just been appointed Leonard refrigerator distributor for the Philippines. James W. Stevenson heads the organization.



The Beer Cooling Equipment Directory and Handbook going to 5,000 distributors, dealers and manufacturers on August 15 offers you an inexpensive and effective means of maintaining contact with these sources of potential business.

This new Directory and Handbook will be the handy reference size—6 in. by 9 in. and will contain general information on the methods of beer cooling with mechanical refrigeration, infor-

mation on the proper cleaning of beer pipes, a resume of the state beer laws, complete specifications on draught beer and bottle coolers, directory listing of manufacturers of beer coolers, beer pumps, compressors and cooling coils.

Reserve space for your sales message now. The rate is only \$100 per page.

Advertising forms will close August 10, 1933.

BUSINESS NEWS PUBLISHING CO., 550 Maccabees Bldg., Detroit, Mich.

COMPANION MERCHANDISE

GRINNELL MARKETING AUTOMATIC BURNER

GRINNELL, Iowa—Grinnell Electrical Mfg. Co., manufacturer of electric refrigerators and washing machines, is now marketing the Grinnell automatic fuel oil burner.

The Grinnell burner is an improved and re-designed model of a line of oil burners that has been on the market for more than nine years, according to L. P. Lang, division manager.

Distribution will be through specialty dealers and jobbers and suppliers of furnaces, stoves, and heating equipment, Mr. Lang states.

The Grinnell oil burner employs a Viking front flange type oil pump with mechanical seal. Motor is a Century repulsion-induction type. Detroit Lubricator pressure regulating valve and oil purulator are standard. A Champion 32-blade steel fan and Benjamin nozzle are other standard equipment. Minneapolis-Honeywell controls are employed.

BOILER-BURNER DESIGNED BY CENTURY ENGINEERING

CEDAR RAPIDS, Iowa—A new boiler-burner unit has been designed by Century Engineering Corp., according to an announcement made recently by E. J. Latner, president.

The unit includes a built-in refractory chamber, super-domestic water coil of sufficient capacity to supply summer and winter hot water without storage tank, and is made in two models. These models have a capacity of 500 and 900 ft. of steam radiation, respectively, with provisions for domestic hot water supply.

The oil burner is fully automatic, being equipped at the factory with a complete set of controlling devices, including stack switch, aquaswitch, combination pressure, temperature, and altitude meter, water glass and safety valve. It is adaptable for use on steam, hot water, vapor, or domestic hot water heater.

The Century boiler-burner unit may be furnished in variety of crackle finishes, copper, red, or green.

REMPE BUILDS OIL-FIRED HEATER FOR HOT WATER

CHICAGO—Rempe Water Heater Co. of this city is introducing a new oil-fired hot water heater for residential installation.

The new Rempe heater consists of a jacketed iron water boiler, tested to 350 lbs. hydrostatic pressure. A constant fire, gravity oil burner is confined in the boiler.

The Rempe heater includes a constant level device which is installed between the oil storage tank and the burner. Included with this device is a safety trip bucket eliminating the possibility of an overflow of oil.

The hot water storage tank included with the heater is of 66-gal. capacity.

Cleveland Concern Brings Out New Boiler Unit

CLEVELAND—Toridheet division of Cleveland Steel Products Corp. has announced a new oil-burner boiler unit for heating old or new homes.

A Toridheet model C ropeller operated oil burner with dual electric pilots is built into the base section at the factory. Load wires are provided from wiring box for connection to the master control.

A non-crumbly heat refractory hearth completely insulates the burner motor, ignition transformer and oil valves from the heat of the combustion chamber.

The unit is equipped with high and low limit controls, low water cut-out and feeder and a built-in large capacity water heating coil for domestic hot water.

The capacity of the boiler is 750 sq. ft. of connected load.

Industrial stylists were consulted on the design of the cabinet which is of sheet steel, air-cell insulated. The body is finished in a light plum baked enamel with a dark plum base.

475 APARTMENTS HAVE COIN-OPERATED WASHERS

CHICAGO—Coin-operated washing machines were installed in 475 apartment buildings in Chicago during the months of May and June by the Hurley Machine Co. of this city, manufacturer of Thor washers.

"Electric refrigerators have been so generally adopted as standard building outfitting that they no longer serve as a competitive advantage over non-equipped apartments," Mr. Hurley declares. "Resourceful landlords and agents were compelled to cast about for some other rental inducement."

After a landlord accepts the Hurley plan, and before the company installs a washer in his building, the tenants receive formal invitations to the "dedication" of the washer. A factory representative gives a demonstration of the machine.

In general one household washer installed in the basement is sufficient for the needs of the average Chicago apartment house. In a few of the largest structures that have been equipped it was found that two or more machines were required.

Each washer is outfitted with a coin-operated meter set to run the washer 20 minutes for a dime. The landlord pays for the current.

ERWIN, WASEY TO HANDLE COLUMBIA ACCOUNT

CHICAGO—Erwin, Wasey & Co., advertising agency here, has been appointed to handle the account of Columbia Phonograph Co. of New York and Bridgeport, manufacturer of Columbia phonographs, records, and electrical transcription records.

MOTOR WHEEL CORP HAS SERVICE SCHOOL

LANSING, Mich.—Dealers and their service men from all parts of the country attended the second annual service and installation school held by the heater division of Motor Wheel Corp. from July 10 to 14 here.

The school, held at the Motor Wheel factory, was conducted by members of the service and engineering departments of the MW heater division and consisted of a complete course of study of the engineering, installation, and service principles of the MW line of oil-burning cooking ranges, automatic oil-burning water heaters, oil-burning space heaters, and automatic oil-burning weather control units.

During the first of the service and installation sessions, lectures were given by Don Jones, chief engineer of the heater division; John Miller, MW engineer; and Prof. F. G. Sefing of the engineering department of Michigan State college.

Mr. Jones' discussion concerned the MW mechanical snap-action control for use on MW automatic oil-burning water heaters. Mr. Miller discussed draft conditions, emphasizing the need for proper chimney construction and also the importance to the service man of determining draft with accuracy by means of the draft gauge. Prof. Sefing talked on the principles of combustion as applied to oil-burning appliances.

A. E. Nussdorfer, MW heater division service manager, gave several lectures at the school. During the Wednesday session he discussed "Estimates of Heat Loss and Design of System for a Forced Warm Air Heating System Installation," advocating and basing his talk upon the National Warm Air Heating Association code.

Speaking again on "Filters and Air Washers" Mr. Nussdorfer cited air

washers as the only practical means of getting completely automatic humidity control in a warm air system.

"The only factor affecting air washer efficiency for both humidifying and dehumidifying is the water temperature," stated Mr. Nussdorfer. "The highest humidifying efficiency with an air washer is not usually obtained with temperatures found in city water, and some degree of tempering the water is necessary."

"On the other hand, satisfactory cooling or dehumidifying requires that the water temperature be below the dew point of the entering air."

Concluding his talk, Mr. Nussdorfer pointed out the misleading effect of advertising which applies the name "air-conditioning equipment" to units which perform only one or two of the functions required.

Other speakers included Ben Valjean, MW heater division engineer; Adolf Franz of the MW service department; C. W. Greenwald, MW range expert; and Roy Boyer, Chicago chef.

Mr. Valjean discussed the MW dual-chamber oil burner used in the MW space heater, demonstrating the right and wrong ways of mixing oil and air for proper combustion.

Mr. Franz stressed the important place occupied by the service man in the field of oil heat; while both Mr. Greenwald and Mr. Boyer discussed installation, service, and use of the MW line of oil-burning ranges.

STODDARD, KENNEDY MADE CONOVER EXECUTIVES

CHICAGO—Edgar S. Stoddard, chief development engineer and factory superintendent, was elected a vice president, and R. R. Kennedy, sales manager, was made a member of the board of directors, at a recent meeting of the board of directors of the Conover Co., manufacturer of electric dishwashers.

NEW MAJESTIC RADIO DESIGNED FOR AUTOS

CHICAGO—Grigsby-Grunow Co. has introduced a new auto radio, a 6-tube heterodyne model with special features including a control unit mounted on the steering column with dial of the airplane type, a small colored pilot light located between the volume control and tuning knobs to indicate when current is passing through the receiver, a volume control knob which acts as an on-and-off switch and which when removed locks the receiver.

List price on the "Twin Six" model is \$39.95. The speaker employed is a 6-in. dynamic. On the left-hand corner of the receiver is a tone control knob. Jacks are provided on the side of the case for an extension speaker.

MAJESTIC ISSUES FOLDERS ON AUTO RADIOS

CHICAGO—As part of an intensive campaign to sell Majestic auto radios, Grigsby-Grunow advertising department recently supplied distributors with two poster mailing pieces bearing the title, "Now is the Time."

Smaller of the two folders is to be mailed to prospective dealers. "Speed up your profits with Majestic auto radio" is the keynote of the mailing piece, which sets forth advantages of handling the line, explains sales promotional material the company will supply, and lists distributors for the convenience of any dealer wishing to get further details about selling in his district. Center spread is a poster to be used in the dealer's window.

The distributor's poster, twice the size of the other, does not limit its attention to auto radios, but shows merits of the complete Majestic radio line.

PURE AND DRY!

ANSUL

Through means of a highly efficient system of dehydration, the moisture content of Ansul Sulphur Dioxide is always reduced to an absolute minimum.

Then, as a final measure of protection, every cylinder is given an individual analysis and the results placed on a red tag you will find attached to every cylinder. Specify Ansul Sulphur Dioxide and be certain of constant high quality at all times.

ANSUL CHEMICAL CO.
MARINETTE, WISCONSIN

SULPHUR DIOXIDE

Mr. Distributor

*this letter outlines
the fairest sales
franchise yet
offered!*

ESTABLISHED 1905

ICE MACHINE CO. INC.

1519 EVANS STREET
OMAHA, NEBRASKA

TO REFRIGERATION DISTRIBUTORS EVERYWHERE:

Cut-throat competition in our industry is on the way out. Already a fair refrigeration code is being prepared. We all have every reason to believe that more sales and legitimate profits lie just ahead.

Now the questions arise: Do you have a franchise that will permit you to fully cash in on this returning prosperity? Does it allow you to profit on every sale you make, even to the largest installations? Can you offer a complete line, from the largest to the smallest? Our new Baker Dual Franchise answers all these questions with an emphatic "YES"! That's why we believe it is one of the fairest franchises ever offered to refrigeration dealers.

The Baker Dual Franchise practically doubles your opportunities in selling refrigerating equipment. It allows you to sell any size installation from 1/4 H.P. units for the corner grocery to 100 ton compressors for sky-scrappers, breweries, packing plants, or any of a dozen other classifications. You get the cooperation of our entire engineering staff...and a profit on every sale.

The demand for Baker Refrigeration is increasing so rapidly that we find it necessary to enlarge our dealer organization at once. If you are a qualified, established distributor and are interested in making more profit from refrigeration sales, you will want details of the Baker Dual Franchise. Drop us a line, today!

Very truly yours,

BAKER ICE MACHINE COMPANY, INC.

F. E. Hartmann, Sales Mgr.

**get the
BAKER
DUAL FRANCHISE**

For Full information write
BAKER ICE MACHINE CO., INC.
1519 EVANS ST. OMAHA, NEB.

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The Newspaper of the Industry

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A Banner Year

SOME three months ago the entire editorial staff of ELECTRIC REFRIGERATION NEWS scattered through the country to interview dealers, distributors, and salesmen, and ascertain something about the state of the industry. The first quarter had been rotten—the most miserable showing the industry had made in years. Uppermost in the minds of the editors was a desire to discover what ailed the organizations attempting to sell electric refrigeration.

But the reports brought back were astounding. Business had suddenly begun to boom. Dozens of dealers interviewed declared gleefully that sales in 1933 were actually ahead of sales for a similar period in 1932, despite the sorry first quarter. Everywhere the cry seemed to be: "Give us more refrigerators. We can sell all we can get."

Factories Taxed to Capacity

Not long after this series of editorial junkets there came from factories substantiating information that the second quarter was going to be a record-breaker. Factories were running 24 hours a day. Orders were piling up; production chiefs sweating and sitting up nights, but still falling behind in the race to keep up with the demand.

And now we have official figures confirming the observations made at first-hand in field and factory that 1933 may be a banner year for the electric refrigeration industry. A new six-months record has been established by the manufacturers represented in the refrigeration division of the National Electrical Manufacturers Association. Furthermore, two factors indicate strongly that the second six months may be good enough to lift 1933 above even the high level of 1931, when the industry sold 965,000 household electric refrigerators.

Reasons for Hopeful Expectations

These factors are:

1. *Continued hot weather*, which is helping dealers continue their record-breaking pace of May and June. Some sales managers believe that the peak selling season may not taper off until late in August.

2. *Low dealer stocks*, which is perhaps the most encouraging factor in the entire situation.

Last year the dealer body was loaded up with refrigerators during the first half of the year to what some executives considered an alarming point. The result was that not many refrigerators were moved from factory to field during the autumn and winter. One manufacturer, for example, sold 93 per cent of its entire 1932 production to dealers during the first six months of the year.

Heavy Inventories at First of Year

Another result was heavy inventories left over at the first of 1933. That helps account for the poor first quarter of 1933; it also explains the slow start to which several manufacturers got

off, and the late date at which many 1933 models were introduced to the market.

This year dealers were determined not to be caught with more floor models than they could sell. Poor business during the first quarter confirmed their opinion that it would be wise to order cautiously.

And then the deluge. Dealers' floor stocks were cleaned out almost before they realized what was happening. They began to hound distributors for more refrigerators. Distributors kept the telegraph and telephone wires to their factories hot, and even made personal trips to see if they couldn't phenagel an extra carload or two from the routing officials at the factories.

Field Stocks Extremely Low

Net result of this feverish activity is that dealer and distributor stocks are extremely low for midsummer, with sales still going strong in many localities. Some factories are still trying to catch up with back orders.

Thus far the industry hasn't had to put on much extra selling pressure. The combination of distrust of banks and other forms of investments, with the hot weather, has made it relatively easy to sell household electric refrigerators. The general business revival has given shopkeepers money to install commercial refrigeration equipment, thus injecting a shot into that arm of the industry. Hard-driving campaigns haven't been needed so badly.

Sales Campaigns Planned for Early Autumn

A few of the larger manufacturers, sensing this situation, are planning to inaugurate contests, advertising offensives, and other business stimulators in August and September. Electric Refrigeration Week will be celebrated widely in October. Not having been worn out by previous campaigns of this type, selling organizations should be able to put plenty of steam into their punches during the latter half of the year.

Production departments have had their big work-out. It's now up to sales departments to finish the job of making 1933 the biggest unit-sale year in the history of the refrigeration industry.

WHAT OTHERS SAY

Partnership Rules Now Evolving

The code hearings reduce to tangibles the general conceptions embodied in NRA and present the practical difficulties confronting both industry and government in their endeavors to make the act effective. The hearings show that industry is complex; that it consists of human beings with varied opinions and dispositions; that it is made up of production, distribution and sales with associated activities in management, finance and accounting. It is soon evident that there is no general rule or formula that is practical or equitable to solve the social, technical and economic problems of any single industry. Yet the law says this must be done and done quickly.

Evidence is overwhelming that responsibility and authority must be centered in a single individual for committees are poor tools to get action and decision. It is also evident that the responsibility and authority must be centered in an individual reporting only to the administration—no group or individual in industry can be delegated the authority safely. Thus the inevitable development will be the growth of industrial dictators for each group of products who report only to the administration.

These men must have almost super-executive ability in order to be all-informed on their respective industries and issue rulings on industry details without getting lost in a maze of red-tape or stunting industry by reason of rigidly binding rulings. This work is necessary and is overwhelming in volume. In the electrical manufacturing industry for example there will be required a master supervisor and at least 60 deputy supervisors and these in turn must necessarily be linked with other supervisors in associated industries whose operations affect or are affected by those of the electrical industry. The ability, perspective and knowledge called for present a tremendous problem.

Thus, while in full sympathy with the desired goals of improved business practice, higher purchasing power and a revived industry there should be a full realization that the difficulties faced in reaching these goals are almost insurmountable. But there is no alternative to trying this partnership experiment. Industry as well as government should cooperate and work whole-heartedly together in the public interest. Only after this is tried can it be said that NRA is a visionary and unpractical scheme that runs counter to more practical and sounder conceptions of the relations of government and business. We venture to predict that two years from now both government and business will sigh with relief at the annulment of present relations but they will enter into new and more practical relations as a result of this vital experience.

Electrical World—July 29, 1933.

LETTERS

Mr. Weston Gives A Plausible Answer

Electric and Radio Association of Kansas City, Kansas City, Mo.

July 24, 1933.

Editor:

The interesting editorial in the July 19 issue of ELECTRIC REFRIGERATION News starts with these questions: "What is selling electric refrigerators today?"

"Why are people continuing to invest in electric refrigeration right through the summer?"

A little further on, the statement is made that "Executives would give plenty to know the answer to these questions."

Last spring, I found out something which relates to the above questions and am pleased to give it to you herewith.

During the past several years, there have been a number of electric refrigeration promotional and development activities in Kansas City. These were cooperative campaigns given by the local distributors and the K. C. Power & Light Co., with the operating details handled through our office.

One of these activities was an electric refrigeration exposition and cooking school given March 28 to April 2, 1932. Exactly the same kind of undertaking was held April 2 to 8, 1933. With business conditions as they were this April, we expected the sales of the latter show to run about 75 per cent of the former.

However, we found the number of electric refrigerators sold as a result of this year's show to be 14 per cent more than the 1932 show.

This amazed many of us and I started out to try to find the reason. I talked to quite a number of people and found one dominating thought which I think gives the answer to your questions.

The people I talked to had either suffered financially themselves from stocks, investments, banks, or building and loan associations, or had friends who had; and so directly or indirectly, they had learned a lesson which caused them to feel that they were now going to get full value or use from whatever money they had.

All of them were thoroughly sold on electric refrigerators and felt that if they bought one, they would be making a splendid investment and have something that would give them a great deal of comfort, convenience, and pleasure for years to come. Further, that with this form of investment paid for, no person could take it away. It was theirs to keep and enjoy!

Please understand that I am not disparaging banks, stocks, building and loan associations, etc., but am merely passing on to you information given to me by the people interviewed. They appear to be in a spending mood.

In later conversations with other people, I found the same dominating thought—that they intended to get the use of their money and not take chances on losing it. In my opinion, this is one reason why automobile radios are selling at a faster rate than ever before. And auto radios are a luxury.

Within the next year millions of men will go back to work and millions of others will have their earnings and pay increased. What a wonderful opportunity this offers astute sales managers who can capitalize on the desire of people to get full and safe use from the funds they have available for investment and pleasure.

G. W. WESTON,

Secretary-manager.

Fair Practice Code For Merchandising

James & Co., Inc.
General Electric Distributor
St. Louis

July 22, 1933.

Editor:

Due to the fact that your publication has the ear of practically all of the refrigeration dealers in the country as well as distributors, I believe it offers you a splendid chance to be of real service to the distribution activities of the refrigeration industry by sponsoring a fair-practice code for merchandising, which might and probably would be adopted almost en toto throughout the country.

In this way much discussion and dissension between local dealers might be overcome because of the prestige which you enjoy from these dealers and the respect which they have for your national merchandising vision. You can see that if it would have the effect that I think would be accomplished, a general code for national acceptance blended with the Nema code, might be adopted without bringing out the selfishness of individuals with axes to grind for one personal reason or another.

My opinion is that it will be absolutely necessary for everyone in busi-

ness who wishes to succeed to form an organization in the very near future and work sincerely for its permanent establishment and the joining with another organization such as the Better Business Bureau or Local Trades Association for proper policing which, of course, is absolutely necessary for its success.

Please think this over and if you think well of the suggestion, let's spread it on your pages in an effective manner at the earliest possible date.

L. D. JAMES,
President.

In Explanation Of a Slogan

Trilling & Montague
Laboratory Approved Kitchen
Conveniences
N. W. Corner 7th and Arch Sts.
Philadelphia

July 20, 1933.

Editor:

Answering your recent letter addressed to Mr. David M. Trilling regarding our trademark of "Trilmont", and in which you ask how testing of our appliances is carried out, we desire to explain that our principal lines have been a number of electric refrigeration promotional and development activities in Kansas City. These were cooperative campaigns given by the local distributors and the K. C. Power & Light Co., with the operating details handled through our office.

One of these activities was an electric refrigeration exposition and cooking school given March 28 to April 2, 1932. Exactly the same kind of undertaking was held April 2 to 8, 1933. With business conditions as they were this April, we expected the sales of the latter show to run about 75 per cent of the former.

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Within the next year millions of men will go back to work and millions of others will have their earnings and pay increased. What a wonderful opportunity this offers astute sales managers who can capitalize on the desire of people to get full and safe use from the funds they have available for investment and pleasure.

G. W. WESTON,

Secretary-manager.

A CENTURY OF PROGRESS
Administration Building
Chicago, Ill.

July 15, 1933.

Mr. E. D. Doty, Advertising Manager, Frigidaire Corp., Dayton, Ohio.

The advertisements of one of the Exhibitors of Electrical Refrigeration units in the Hall of Science have come to our attention. The statements in these advertisements are misleading and in justice to our other Exhibitors of Electric Refrigeration in A Century of Progress, should be corrected.

The Exhibit in the Hall of Science is part of the Basic Science exhibits installed by the Exposition, and is designed to show the scientific facts concerning the cycle of refrigeration. No competition was held by the Exposition in selecting a refrigeration unit for this Exhibit, and any one of a number of units of standard manufacture would have answered the purpose as well. As you know, it is not the policy of the Exposition to give prizes or awards. All exhibitors entering A Century of Progress receive the same certificate of participation.

C. W. FITCH,
Director of Exhibits.

I Want to See More News About'

"Construction details, both in the box and the mechanism."—F. J. Armstrong, 58 Lincoln Ave., Atlantic Highlands, N. J.

"Air conditioning and expansion systems."—A. L. Harris, 40 Notkins St., Hamden, Conn.

"Comparisons of the cheaper vs. the better or high-priced lines."—L. W. Hitchcock, Round Lake, N. Y.

"Water and beverage cooling."—D. H. Dolison, 6527 Russell St., Detroit, Mich.

"Frigidaire."—E. D. Smathers, Box 538, Lexington, Ky.

"New and improved apparatus for controlling in various instances."—Al. W. Derr, 2775 Pittsburg Ave., S. Sec. Sta., Cleveland, Ohio.

"Frozen foods and display cases."—John Fink, Inc., 51 Washington, Brooklyn, N. Y.

HOME SERVICE

Kelvinator Home Economists Inaugurate Special Event in Annual Derby Contest

By Jean M. Kerr

Home Economics Derby

A cool place on a hot day—Kelvin Kitchen. And, matching the pleasant atmosphere in her cool blue dress, was JEAN GEARING of the home economics staff as she undertook to show us about the kitchen in place of MARIAN SAWYER, who was away on vacation.

The staff has been very busy during the past week. One of the big projects underway is the annual Kelvinator Derby sales contest, which opened July 24. For the first time in its history, a home economics "track" is included in the racing event. Letters to the 76 branches which have home economics departments, and other red tape involved in getting the horses away, had occupied Miss Gearing and PAULINE PEACOCK all the previous day.

While we were inspecting the blue-and-white workshop with its complete equipment and pictures of refreshing beverages and desserts around the walls, Miss Peacock came in. She was about to set forth on another trip (and left the following week-end) helping to get the derby started in northern Michigan. Her first stop is Grand Rapids, where she is assisting Consumers Power Co. in home economics work. Rounding out a trip to the Lake Michigan cities, she will hold cooking schools in Bay City for two weeks.

Miss Peacock visited the Chicago World's Fair over the Fourth of July, and demonstrated Kelvinator cookery before audiences totalling 6,500 during the week-end. Feature of her lectures was Kelvinator's own brand of chocolate ice cream, which is now being served Fair visitors daily at the Kelvinator booth.

The next Kelvinator bulletin, she said, will be concerned with the World's Fair, and will include the chocolate ice cream recipe for which many requests have been received.

Trouping

Evidently hot weather is just pie—or perhaps it's ice cream—for the Kelvinator home service department. All members of it are either travelling around the country visiting selling organizations, or working just as hard at home on the derby and the new recipe book which will come out soon. EVA McPHERSON has been on the Pacific Coast for the last two months commuting between Los Angeles and San Francisco. Establishment of two home economics departments has resulted—one at the distributorship of Listenwalt & Gough, Los Angeles, and one in connection with Sherman Clay & Co., San Francisco distributor. FAY NEWSOME will head up the Los Angeles department.

For another month Miss McPherson will be covering the Coast and the Northwest, contacting distributors in Portland, Spokane, Seattle, Sale Lake City, Boise, Denver, and Kansas City (Mo.).

Going into the South about the second week in August to stimulate interest in the derby are GERTRUDE JANSSEN and DOROTHY COVERT. Miss Janssen will work with the Southern Public Utilities properties with headquarters in Charlotte, N. C., while Miss Covert will be connected with Virginia Public Service in Alexandria.

Ice Cream

Pleasant interlude in the morning was the graham cracker ice cream Miss Gearing served us. She is in charge of testing refrigerating recipes, and told us that this subtle confection is simple to make—consisting principally of graham crackers and coffee cream.

Recent visitors who sampled Kelvin Kitchen's food at luncheon were SUSAN BRANDON and LOIS WELLS, from Alabama Power Co.'s home economics department. They were en route to "A Century of Progress," and stopped off to see where Kelvinators come from.

Much impressed by the red currant ice served them, they bought a box of red currants to cart all the way home to Alabama, which doesn't have this fruit.

Henry Ford on Kitchens

"When every person in the United States agrees on one thing, there is no power on earth to keep us from it. We all agree now that we want the kitchen side of life so organized that

we may be free to turn our minds to the real concerns of the human race."

Thus does HENRY FORD take the housewife's side of the case in "Faith in the Future," an interview with JAMES C. DERIEUX which appeared in the July issue of *Good Housekeeping* magazine. He believes that the more equipment we have for life, the more we will need.

"There is a tremendous demand in this country now," he points out. "How many of your friends have all the equipment they need for comfort? People cut down on clothing, on furniture, on household appliances, on travel, on automobiles. Old machines of all sorts are being mended and patched. That's too expensive a process to keep up. New machines are better and cheaper. Most of the people in this country right today need to replenish almost everything."

Sitting around will not get us out of the depression, Mr. Ford believes, and neither will governmental aid. What we need to do is to think about the new things that are bound to come. If we hit upon one, we'll help raise the prosperity level.

"The woman of the future," he continues, "—not the far distant future, either, but within the next few years—will find herself living in a house far more comfortable than any of today. The desire, the demand, for better housing is strong. There is no sense in the present laborious methods of housekeeping. Electricity will do the housework. Not only for the rich but for nearly every one. Millions of kitchens today are as out of date as the old spring at the bottom of the hill from which pails of water had to be toted to the house."

Electricity on the Farm

The point of view of millions of farm women is taken into careful consideration in an article "Cold Comfort," by VERA B. MEACHEM, written for the May, 1933, issue of *Electricity on the Farm*.

She realizes, in the first place, that when electrical equipment is purchased for rural use, it will see harder service than it will in the city apartment—that points of durability, adequate storage space, and general usefulness appeal strongly to the woman in the rural community.

Old-time prejudice, also, is foisted by her opening sentence:

"Humph!" said my mother-in-law standing before the electric refrigerator in my kitchen. She settled her glasses more firmly on her nose and peered over the top of them at the coil of tubes that surmounts the box. "What won't electricity do nowadays! Think of shutting up cold in a box like that to store things in. When I was a girl—" etc., etc.

From this beginning, Miss Meachem guides the reader, through the reactions of her mother-in-law, to see the advantages of modern refrigeration. And, having convinced her audience of its worth, she proceeds to some helpful warnings about purchase of a refrigerator.

"You can see the outside of the box for yourself," is one of her points. "But you cannot see the insulation in the walls. Yet this is as important as the lining, as important as the sturdy framework of the box itself. To satisfy yourself about the insulation, ask to see a cross-section of the walls—most dealers have them—and make sure there is at least two inches of corkboard or hair felt or some other good insulating material in the walls."

The same realistic tone is achieved in GAIL MEREDITH'S recipes in the same magazine. Her main topic of discussion is how the refrigerator will preserve foods prepared for cooking, until they are ready for the oven. One paragraph shows her style:

"Last Sunday we had guests, and chicken pie for dinner. I cooked the chicken and the vegetables Saturday and made the pie, all but the top. Then I covered it up tight and set it away in the refrigerator. Sunday after we got home from church, I roofed it with baking powder biscuits and baked it for half an hour while I got the rest of the dinner on the table."

REFRIGERATOR AIDS WINNER IN REMODELING CONTEST

OKLAHOMA CITY—Installation of a General Electric refrigerator and range in her kitchen helped Nannie Maud Matthews of Oklahoma Gas & Electric Co. win a prize of \$100 in the recent Better Homes Remodeling contest of the *Daily Oklahoman*.

PROSPECTS ADVISED TO STUDY REPORTS

WASHINGTON, D. C.—That reliable information on construction, size of storage space, operating cost, and performance under ordinary home conditions of a refrigerator should be obtained by prospective purchasers before buying is emphasized in a recent report issued by the United States Bureau of Home Economics here.

Satisfactory average temperatures should be maintained in a refrigerator, which means 45° or below in the milk compartment and 50° in the rest of the box, according to the bureau. In order to maintain these temperatures, good insulation is a necessity.

"The efficiency of the cabinet depends more upon the insulation and its method of installation than on any other one factor," states the report. "Adequate insulation, while it increases the cost of the cabinet, materially decreases the cost of the refrigeration required to maintain standard temperatures."

Storage space should be carefully checked according to the size of the family, the use to which the refrigerator is put (frozen desserts, etc.), and the way marketing is done. Six cu. ft. is estimated as adequate for a city family of five, while a country family requires more space.

Other necessities to good refrigeration are a strong frame, smooth inner lining which can be cleaned easily, washable exterior, well-insulated doors fitted with gaskets and pressure latches, non-rusting hardware, etc.

RANGE DEMONSTRATION

MANSFIELD, Ohio—Ruth Manus, Westinghouse range home economist, has just completed a salesmen's cooking school and range demonstration at the factory kitchen here.

Frigidaire's 'A Key To Meal Planning' Aimed to Draw Housewife's Interest

DAYTON—"Get a housewife interested in kitchen economies, then show her how to plan her menus—and you've gone a long way towards selling her an electric refrigerator," is the advice of Verna L. Miller, director of Frigidaire home economics. And this fundamental of selling is the *raison d'être* of Miss Miller's sales promotional booklet, "A Key to Meal Planning," which is being featured as part of the Frigidaire July-August sales campaign.

"Attention is being focussed on the 'Key to Meal Planning,' (a 20-page book providing a complete program of meals, properly balanced from a standpoint of dietetics) by means of window displays, radio, and newspaper advertising," Miss Miller explained. "The book is also featured in a rotogravure tabloid. Five million of these were printed to be used in this campaign and are being used with telling effect by the dealer organization. The book is offered all callers at the stores of our 5,000 dealers as a souvenir."

Explains Use of Book

From the moment the book catches the visitor's eye it is an easy matter to hold and quicken her interest in electric refrigeration, Miss Miller believes. As the visitor is handed one of the books, the salesman points out illustrations on a display card and explains how the book is used by the housewife. He shows her that by using it she may solve the never-settled question of "What Shall I Have for Dinner?"

"Nine out of ten women are immediately interested," said Miss Miller, "for meal planning is one of the most pressing problems confronting the modern housewife. Then, as the salesman explains the booklet, the house-

wife learns that the menus are designed to help her economize through the utilization of 'left-overs' from other meals."

At this point the conversation may be switched directly to electric refrigeration, when the visitor makes a natural inquiry as to how it is possible to save "left-overs" during the hot months. Miss Miller suggests that the salesman increase the caller's interest with an actual demonstration, by means of a household refrigerator nearby, of how much food may be stored, and how celery, lettuce, and greens may be "freshened" and restored to their original crispness.

Interested Prospect

If the showroom guest happens to be a Frigidaire user already, she usually passes word about the Key to Meal Planning along to several friends. If not an owner, she is already an interested prospect.

Hundreds of sales, according to Miss Miller, have been directly traced to the new booklet since the opening of the July-August sales drive.

"One reason why our 'Key to Meal Planning' has proved so popular," said Miss Miller, "and is proving such a valuable help to salesmen in our mid-summer campaign is that it contains only thoroughly proved facts. In our research, we used a number of average-sized families. Each home was Frigidaire equipped and careful attention was paid to economy in marketing. As a result of the savings effected through being able to keep food safely over a period of days, it is possible to buy on 'bargain days.' Through this economical marketing, an amount equal to \$4.71 per month was saved a family."

A FACT THAT 10 YEARS IN THE REFRIGERATION INDUSTRY HAS TAUGHT US

BUSINESS SUCCESS

is built on . . .

THE LAST SALE

Every business success is built on the last sale. If the product is right—if good will and confidence have been developed—that last sale will be another step to success and profit. That is why we consider every sale of such great importance—and why we do everything within our power to make it upon a sound, constructive basis.

UNIVERSAL COOLER CORPORATION

DETROIT, MICHIGAN BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

SERVICE MEN START SOCIETY IN DETROIT

DETROIT—The Detroit chapter of the Refrigeration Service Engineers Society, an organization of electric refrigeration service men with chapters in several of the leading cities of the country, was formed here July 19, with 35 of those in attendance signing the petition for a charter.

The main objective of the society is an educational program intended to improve the efficiency of the men actively engaged in servicing household and domestic refrigeration.

Plans were made to hold meetings twice a month, and to invite leading refrigeration engineers to these meetings to speak on current problems in electric refrigeration engineering and service. A meeting was scheduled for Wednesday, Aug. 2, at Detroit City College.

Temporary officers of the Detroit chapter, elected at the first meeting, are as follows: L. R. Richards, Nome Refrigerator Co., president; Max Rothenberg, Republic Refrigerator Co., secretary; W. Klein, Zerozone Sales & Service Co., treasurer.

Those who signed the petition for a charter, in addition to the officers named above, are as follows:

C. S. Abel, United Refrigeration Service; M. L. Berman, Detroit Refrigeration Service Co.; M. Buggy, Apex Refrigerator Service; L. R. Burns, Electrical Specialty Service Co.; O. J. Claise, Claise Radio Co.; G. H. Clark, Mercier & Clark, Inc.

W. H. Corsan, A.B.C. Refrigeration Co.; S. J. Dautrick, Stewart Electric Service; O. Evans, Consolidated Service; Sydney Fletcher, Republic Refrigerator Sales & Service, Inc.; Hans Harbe, Mechanical Refrigeration Sales & Service; Richard Hartman, Grinnell Bros.; G. A. Holder, Copeland Co. of Detroit; E. L. Hughes; B. G. Hyatt, Copeland Co. of Detroit; Stephen Knoblock; S. C. Kornblum; J. C. Lamb; A. G. Lewis, Jr.; J. E. Matany, North-East-South-West Electrical & Mechanical Engineering Co.; J. W. Oberc, Riley Engineering Corp.; James O'Kane, Nome Refrigerator Co.; R. S. Palmer, Al Refrigeration Service; J. W. Robertson, Grand Linn Washer & Electric Service; Anthony Schafer, Schafer Refrigeration Service; Frank Spohor, Grinnell Bros.; A. P. Stevens, United Refrigerator Sales & Service Co.; C. H. Turnquist, Cass Technical High School; H. Watson, Apex Refrigeration Service; L. F. Wilber, Grinnell Bros.; P. J. Welschon, Chas. J. Welschon & Son.

Universal Installed to Cool Morgue

MINNEAPOLIS—Harold L. Schaefer, Inc., Universal Cooler distributor here, has installed a two-body mortuary cabinet in the Hennepin County Morgue in this city.

Insulated by 6 in. of cork, the cabinet is cooled by tubular coils refrigerated by a $\frac{1}{2}$ -hp. Universal Cooler compressor located on the top of the case. Temperature is ordinarily maintained at 40° F., but may be held at a lower point.

GRUNOW REFRIGERATORS PRESENTED TO GEN. BALBO

CHICAGO—While Gen. Italo Balbo and his crew of 96 trans-Atlantic flyers were visitors at A Century of Progress here, William C. Grunow, president of General Household Utilities Corp., presented the 38-year-old Italian general with four Grunow refrigerators.

In a letter to Gen. Balbo, Mr. Grunow praised the flyers' achievement, and explained that the refrigerators were to be shipped to Italy—one for the Air Club, one for Premier Benito Mussolini, another for King Victor Emanuel, and the fourth for Pope Pius XI. All of the refrigerators were models of Grunow's deluxe line.

Westinghouse Prepares Films for Salesmen

MANSFIELD, Ohio—For use in demonstrating and promoting sales of its new Master Series electric refrigerators, the refrigeration division of Westinghouse Electric & Mfg. Co. has prepared two new movie films for use in homes or meeting rooms.

The first, "Miracle Hill," dramatizes the Westinghouse research laboratory and cinematizes the Westinghouse refrigerator line at the end. The second, "Master Builders," is intended primarily for demonstrating the line to salesmen, and covers all features of the refrigerators in detail.

BY JOHN T. SCHAEFER --

Confined to the Office

Young men like to travel, especially unmarried ones with no domestic connections. And editors of the News are notorious travelers, spending considerable time on the road making personal visits to active news sources.

When an editor of the News has been at home for an extended period of time he begins to feel out of touch with things, and wonders if the local news-gathering facilities (mail and telephone) are availing him of the complete, interesting facts about developments of the day.

Visitors Are Welcome When They Bring News

Brightening up this past week of office confinement were visits from a number of interesting men bringing first-hand news of the outside world. One of our chief indoor sports is showing our up-to-date publishing equipment (linotype machine, composing room, Teletype system, tabulator machine, etc., to guests who didn't call to sell us anything.

Moreover, such visitors often bring news that we might have traveled miles to get. They're welcome any day—although on Monday and Tuesday when we're very, very busy putting

ting the week's paper to press we cannot always be as hospitable as we would like to be.

Engineer Zorzi Calls on the News

Most distinguished visitor of the week was Carl Zorzi, Italian inventor of the vacuum system of gasoline supply (now built by Stewart-Warner), a hydrogen welding process which is used extensively in Europe, etc.

His newest development is a motor-compressor unit, suitable for either household or commercial refrigeration. The machine is unique in that the stator winding of the motor is outside the compressor casing, and because of the novel compressor design. The compressor itself might be called a combination reciprocating-rotary type, the piston and cylinder having a reciprocating movement with relation to each other, but the elements operating in a rotary motion.

With Siegfried Ruppricht, as an interpreter, Mr. Zorzi has been touring the country to acquaint manufacturers with his new product, and to study refrigeration methods in this country.

It's Hot in Italy—Refrigeration Popular

Italians are quite refrigeration-minded, he says, using it extensively in food stores, and also in homes. About half of the household refrigerators used in Italy are American-made, remaining makes being Italian or German.

Due to the high temperatures of their climate, the Italian people are highly interested in air conditioning, and are becoming accustomed to its benefits in a number of air-conditioned theaters. Most of these installations were made by Carrier.

These were some of the things we learned over the lunch table with Messrs. Zorzi and Ruppricht in an Italian beer garden. Mr. Zorzi's masterful ordering of the food and handling of the waiter, incidentally, were a joy.

One of Mr. Zorzi's hobbies is aviation, since he was in charge of building airplanes for the Italian government during the World War. When General Balbo landed in Chicago, Zorzi was the first to greet him, Mr. Ruppricht says. When the two left Detroit in their big brown Pierce-Arrow, it was to see General Balbo hop off from New York.

Showing a New Control

If you're interested in the subject of controls for air conditioning, you should talk to George Kingsland, vice president; L. B. Miller, manager of the refrigeration division; and W. F. Arnoldy, Detroit branch manager, of the Minneapolis Honeywell Regulator Co.

These men dropped in a couple of days ago to demonstrate their new Modutrol system of controlling apparatus which conditions air for human comfort. The Modutrol has been widely used in large buildings to regulate heating systems, and has now been refined for automatic control of combination heating and cooling systems.

The Minneapolis-Honeywell men have a demonstrator case housing a Modutrol. They connect it to a 110-volt A. C. power circuit, hand you a thermostat, and show you how to change the position of the damper in the box, by movement of the thermostatic arm.

The system uses a highly sensitive electrical arrangement of two Wheatstone bridge circuits, the first (operative from a thermostat or humidistat) to start and stop a small motor which will actuate a damper, water valve, etc., the second to balance out the flow of current in the motor when it has moved the control arm the desired distance.

For a complete description of the workings and application of this device, watch for an early article in ELECTRIC REFRIGERATION NEWS.

Air Conditioning in Spring and Fall

With the Modutrol, Mr. Kingsland points out, they have taken a new step in providing for automatic control of air-conditioning equipment in the spring and fall months, as well as in summer and winter. Temperature and humidity conditions sometimes change rapidly inside of an hour during these odd-season months, requiring a new degree of responsiveness in control devices, he says.

Past experience with air cooling installations has convinced him that people want completely automatic air conditioning. They don't even want to be bothered with throwing a switch from summer to winter operation, he declares.

Aug. 23 Commercial Machine Specifications Issue of ELECTRIC REFRIGERATION NEWS

Refrigeration distributors and dealers want specifications on the equipment they sell and on the equipment sold by the competitors.

Earlier this year the News printed specifications on household refrigerators with a resulting demand of over 10,400 copies (*a big extra value for advertisers*).

Sometime later the News printed the specifications on mechanical beer coolers and the demand for extra copies again proved unusual (*another extra value for advertisers*).

Now in the August 23 issue the News will print specifications on commercial machines—(*which means another extra value for advertisers*).

Commercial refrigeration is getting a new lease on life.

The return of beer is improving the income of hotels and restaurants, making them better

able to buy much needed refrigeration equipment.

The growing knowledge on the part of the meat market and grocery as to the profit building abilities of mechanically refrigerated display cases makes this part of the commercial market particularly attractive.

The increase in the number of manufacturers going after this market makes the competition for the good distributor and dealer of great importance. He can almost pick and choose—and he will.

The best potential commercial refrigeration distributors and dealers read Electric Refrigeration News every week. They look to it for sales information.

Your sales message in the August 23 issue will reach these distributors and dealers with particular effectiveness.

Reserve Your
Space Now
Advertising
Forms Close
Aug. 19, '33

H. W. Mateer, Adv. Mgr.
Electric Refrigeration News
550 Maccaebes Bldg.
Detroit, Mich.

Date _____

We want our advertising message in the Commercial Machine Specifications issue Aug. 23.

Reserve space of _____ columns by _____ inches.

Company Name _____

Street Address _____

City & State _____

Signed by _____

AIR CONDITIONING

Cold Storage Plant's Engine Room Air Conditioned at Little Expense

By R. H. Smith, York Ice Machinery Corp.

CHICAGO—A severe test of comfort cooling is being carried out in actual practice in the office of the chief engineer, Fulton Street Wholesale Market Co. here. This company, a central distributor of refrigeration and steam over an area of several city blocks in the wholesale packing district of Chicago, operates a refrigerating plant of 700 tons capacity, one of the largest in the city.

The compressor room of this plant is a basement one with a low ceiling and very little ventilation. Their boiler room is immediately adjacent and is uninclosed from the compressor room. The compressor, motor, and boiler heat seldom allow less than 90° F. in the compressor room even in midwinter, a fairly constant temperature of 110 to 115° F. in summer.

The office of the chief engineer, where much time must be spent, is situated about the center of this room. It is almost entirely of single pane glass, built for vision over the engine room, and with no idea of its being cooled.

The office being practically uninhabitable, the company in December, 1931, purchased a York Utility Air Cooler, ceiling type. This unit was connected to their existing direct expansion ammonia system.

The cooling unit contains 60 sq. ft. of cooling surface, with a fan speed of 880 r.p.m., with a nominal rating of 850 cu. ft. per minute. It was equipped standard with an ammonia

liquid trap and low pressure float combined. A suction pressure regulator was furnished to control the suction pressure automatically at the unit for any given setting, which governs the temperature of the cooling surface and its frosting.

The fan motor was connected to start and stop by means of a magnetic starter which was in turn actuated by a room type thermostat. Further, the fan speed was made variable by inserting a variable resistance in the wiring to the fan motor.

Thus, the entire installation was made flexible, with the coil temperature, the fan running time, the fan speed, and the desired resultant room temperature being adjusted at will or left to operate entirely automatic at any given setting of the controls.

The air was not recirculated in the office but was exhausted through vents for this purpose. Thus air at 90 to 115° F. was, and is, continually brought over the cooling coils and fed to the room at between 70 and 80° F.

While this was not installed as a test plant, more severe operating conditions are hard to find. The equipment was installed in Dec., 1931, and it has run summer and winter since.

The office temperature is maintained at will between 70 and 80° F. The humidity is also regulated as desired by the setting of the suction pressure regulator which effects the amount of moisture on the coils.

No building alterations of any kind were made in this room to be cooled except the necessary small inlet and outlet openings.

The entire initial cost of this particular installation to the Fulton Street Wholesale Market Co. was less than \$300. The refrigerating load of this job, assuming an average of 100° F. entering air temperature, and operating at 50 lbs. suction pressure, is about 1 ton per 12 hours, the approximate time the unit is operated.

This amount of refrigeration in a plant of this size is negligible, as is the small amount of electric current used to drive the small fan motor. In a plant producing any amount of refrigeration, where the mechanical equipment is already present, the cost of a small additional load for air cooling is small.

An already existing refrigerating plant whose capacity is not now extended to the limit, is in a particularly advantageous position to avail their private offices, accounting departments, etc., of comfort cooling at a very small cost. Perhaps they have thought the cost exorbitant, or perhaps they haven't thought of it at all. The cooling units proper and their controls are inexpensive, and are but a fraction of the entire cost of an air cooling installation where all of the mechanical equipment to produce the refrigeration must be purchased new.

Cooling Units May Be Rented to Tenants

NEW YORK CITY—Engineers of the Equitable building here have placed several makes of portable and stationary cabinet-type air conditioners on test in the building, and are exhibiting the units to interested tenants.

In a letter to all persons renting space in the building, C. T. Coley, the building's operating manager, recently informed the tenants that the management contemplates renting air-conditioning and room-cooling equipment to all offices desiring it.

Ice Frozen at Night Cools Offices In Daytime

DES MOINES, Iowa—Main offices of the Penn Electric Switch Co. here have been equipped with an air-conditioning system which cools, dehumidifies, and circulates the air.

These three functions are accomplished by means of an electric refrigeration system which freezes ice in an insulated tank during the night hours when comfort cooling of the offices is not required. In the daytime, fans blow air over a series of discs which are in contact with the ice and water in the tank.

The cooled and dehumidified air is then forced into the offices above the cooling system, and when the treated air has passed through the offices, it is returned to the conditioning system for recirculation. A 5-hp. compressor is used to freeze ice and cool the water in the insulated tank.

Temperature of the offices is lowered five degrees, Penn officials say, and humidity is decreased by about 15 per cent. Total air volume of the space conditioned is approximately 48,000 cu. ft. Some 1,200 sq. ft. of glass form a part of the wall space.

The blowers of the air-conditioning system circulate approximately 4,000 c.f.m., and effect between five and six complete air changes per hour. The building is of reinforced concrete and brick construction.

C. A. OLSON TO HANDLE BUSH PRODUCTS IN CHICAGO

CHICAGO—C. A. Olson at 5809 Midway Park Ave., here, has been appointed sales representative for the Bush Mfg. Co., handling Bush refrigeration products. Mr. Olson was previously connected with the National Radiator Co., and with the American Radiator Co. as an engineer on American cast-iron cooling sections.

AIR CONTROLS, INC. BUYS FAN COMPANY

CLEVELAND—Purchase of the Warm Furnace Fan Co. has just been completed by Air Controls, Inc., a division of the Cleveland Heater Co. here.

The new organization, under the direction of A. M. Apmann of the Cleveland Heater Co. and Marion I. Levy, former air-conditioning engineer of Bishop & Babcock Sales Co., will continue the manufacture of fans and blowers for air-conditioning systems.

Factory of the Cleveland Heater Co. is to be used for development and manufacturing activities. In addition to propeller fans, the company will produce three sizes of blowers with selective speeds for intermediate capacities, according to Mr. Levy.

These blowers are designed especially for combined heating and cooling systems, where quiet operation under relatively high static pressure is required.

PARKS-CRAMER DEVELOPS NEW CABINET HUMIDIFIER

FITCHBURG, Mass.—Parks-Cramer Co. is manufacturing a cabinet-type humidifier, the "Mistyfier," said to be capable of atomizing from one to four lbs. of water per hour, depending upon its adjustment.

Motor used is of the condenser type. All models are equipped for permanent water connection by means of small copper tubing, which also provides grounding for the electrical apparatus, according to R. S. Parks of the manufacturing company.

Direction of the water spray is adjustable, and each unit has sufficient evaporative capacity to humidify the air in a home of approximately 18,000 cu. ft., says Mr. Parks. All models are equipped with automatic regulators set at the factory for 50 per cent relative humidity.

SEALED LUBRICATION
an exclusive feature on
DELCO MOTORS

One thing you need never worry about if your product is equipped with Delco SEALED LUBRICATION—and that is whether or not the service man forgets to oil the motor at time of installation. Delco motors with SEALED LUBRICATION retain the oil. The motor is filled with oil at the Delco factory. The oil CANNOT come out, during shipment, during installation or during operation; it is in the motor to stay—retained by a patented non-spillable end-head which returns all excess oil to the reservoir. This added feature of Delco dependability is the extra safeguard so appreciated by manufacturers, dealers and owners.

DELCO PRODUCTS CORPORATION
DAYTON, OHIO

Filtrine Water Coolers

STORAGE-DRY SYSTEM

DUE TO STORAGE RESERVE, chilled water is always available to meet "peak loads," in excess of condensing unit hourly capacity. DIRECT CONTACT COOLING. Extra heavy, steel pipe, evaporator expansion coil submerged in drinking water effects instant heat transfer. Strength of coils eliminates possibility of refrigerant getting into drinking water or water into refrigerant.

Steel Pipe Coils

DEHYDRATED—CLEANED

Filtrine Mfg. Co.
Brooklyn, N. Y.

SELL!

a completely equipped
REFRIGERATOR

FEDERAL REFRIGERATOR FURNISHINGS

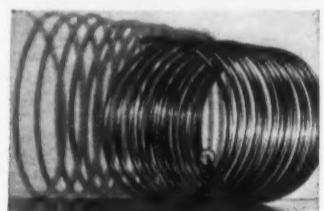
The only complete line—saves space—saves food—saves money

They increase the capacity and efficiency of every refrigerator

FEDERAL ENAMELING & STAMPING CO.

World's Largest Manufacturer
of Enamelled Kitchenware

PITTSBURGH • PENNSYLVANIA



Coil of 60 ft.

Reel of 425 ft.



FRENCH TUBES

are available in

LONG LENGTHS

A NEWLY developed process makes possible the production of French Seamless Copper Refrigeration Tubes as large as one-half inch in diameter, in lengths up to 200 feet. Smaller tubes are available in even longer lengths. For instance, the one-quarter inch tube illustrated is 425 feet long.

These new long lengths materially reduce the risk of failure by minimizing splices. Also the longer lengths reduce scrap losses, as the exact amount required can be cut without waste at the ends.

French De Luxe Copper Refrigeration Tubes are free from oxide and foreign matter. Each coil is completely dehydrated, sealed, rigidly tested and reaches you ready for use. For manufacturers who prefer to do their own dehydrating, the French Manufacturing Company produces copper tubes dried (commercially dehydrated) with either open or closed ends.

All French Copper Refrigeration Tubes possess the requisite properties for lasting, dependable service. Their grain structure is uniform. These important qualities are in every coil because metallurgical skill, long manufacturing experience and only the best of raw material go into their production. Additional information will be furnished upon request.



THE FRENCH MANUFACTURING CO.
General Offices: Waterbury, Connecticut

FRENCH REFRIGERATION TUBES

SERVICE

Commercial Installation Men Must Have Thorough Refrigeration Training

DETROIT—A thorough knowledge of refrigeration is much more important when installing commercial equipment than when handling household systems, according to engineers who have just issued a new Universal Cooler Service and Installation Manual. Prompt and efficient service of commercial machines is necessary, because in many cases they may be protecting several hundred dollars' worth of perishable merchandise, the manual points out.

The service manager should know the entire subject. When he examines a refrigerator, he should be able to tell immediately and without trial whether the cold and warm air ducts need rebuilding to get the best results. He should be able to check the salesman's figures as to size of the box, amount of refrigeration required, and be sure before installing equipment that it has been selected to give full satisfaction.

The commercial system must be installed carefully, and should be checked once a day for the first few days, for the general operation of the system depends, to a great extent, on the way in which it was installed.

The service man that does the work on commercial systems should be well equipped. He should have a small complete stock of fittings, such as flare nuts, flare unions, tees, etc., as well as the necessary compressor parts.

There is no need of carrying crankshafts, cams, piston assemblies, and such parts in the service car, because if a compressor needs complete overhauling, it should be taken to the shop; but the service man should have discharge and suction valves, line valves, head bolts, and gaskets of every kind on hand. He should also

have a supply of refrigerating oil and refrigerant.

The service man's tool kit should be complete. Every service man should have a good one, and keep it in first-class condition. Broken or lost tools should be replaced promptly. Suction and compound gauges should be carried in the kit at all times. The gauges should be checked to see that they are accurate. This is especially true of the compound gauge. One that is off a few pounds is more than likely to cause a lot of trouble.

The tool kit should always contain one or two driers. An extra expansion valve may save a lot of time when time is important.

A well equipped service man is usually a good one. The important thing, of course, when a commercial system goes out of order is to get it back in shape and refrigerating before the temperature reaches a point where the perishable foodstuffs are endangered.

COMMERCIAL INSTALLATION INSTRUCTIONS

Commercial installations, whether used in apartment buildings, restaurants, or stores, may be divided into two classes: those installed in new buildings, and those installed in old buildings.

In new buildings, a great deal of labor may be saved, and a neater installation can be made by "roughing in" the tubing before the walls are lathed and plastered.

However, even in old buildings, a great deal of the tubing can be concealed. Men experienced in electrical wiring are particularly well fitted to do this kind of work.

In some parts of the country, the bare tubing can be fastened to the wall or ceiling in the basement, but where it is liable to be damaged, it should be protected by half round moulding, wire mould, or flexible conduit.

In some cities, the building code requires that all tubing shall be protected by rigid conduit, and all valves and connections be installed in metal boxes which are readily accessible. Nearly all the City Codes are modifications of the Code of the National Board of Fire Underwriters. This Code calls for rigid conduit and metal boxes, except that flexible conduit, not exceeding six feet in length, may be used for bends.

Do not make joints in places that will eventually be sealed and be inaccessible. If necessary, put in wooden boxes that can be covered with removable metal plates. The tubing must be sealed at the end so that dirt and moisture are excluded until such time as the units are installed. Basement ceilings are usually plastered, so when "roughing in," be sure and take this into consideration.

Electric wiring and water lines may also be "roughed in" before lathing. This is also true of water cooling systems, especially those of the circulating type. In old buildings, where the installations are made according to code, the conduit and boxes will sometimes be exposed. However, as much of it as possible should be concealed.

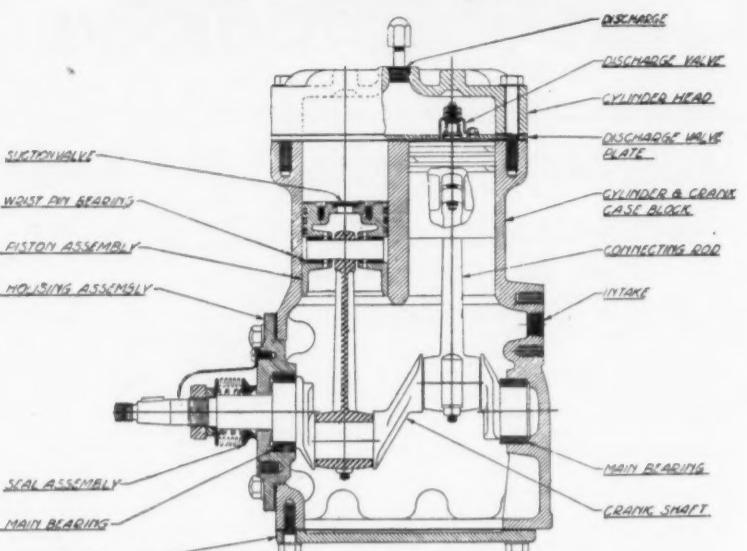
Before starting to make a commercial installation, the service manager should go to the job and make an inspection. After checking according to the following outline, it may be advisable to make a lay-out or sketch of the proposed installation.

1. Check the dimensions of boxes or cases, and make sure that the equipment recommended is adequate and will fit the bunkers. If not, take the matter up with the sales department, but not with the customer. Do not undermine the customer's confidence in the salesman that sold him the equipment.

2. Determine, if possible, the kind of walls and floors in the building, especially those that have steel or concrete construction. In new buildings, it is advisable to "rough in" conduit or tubing before the concrete is poured.

3. After securing the above information, select locations for the condensing units, which should be set in cool, dry, well-ventilated places that are centralized in relation to runs of tubing. If the condensing unit is

Commercial Compressor



Cross-section of a 2-cylinder, 2 1/4 by 1 1/2-in. compressor, typifying modern design practice. This size is used with 1/2 and 3/4-hp. motors.

water-cooled, it cannot be installed in a place that ever reaches freezing temperatures.

The question of noise should also be considered. Even when a unit is obviously quiet, it may be objectionable to some people. Water-cooled units are quieter and more efficient for commercial installations than air-cooled units.

4. Where water-cooled units are to be used, make sure that there is a water supply available as well as a drain. If there are plumbers working in the building, it is advisable to make arrangements to have the water lines brought direct to the unit location.

5. Lay out the tubing. Balance the loads in such a manner that the different branches are as nearly equal as possible.

6. Have the power company check the load in the building to determine whether or not there is sufficient capacity to carry the additional load of the units. It is well to have an understanding on new jobs that the owner will supply the electric outlets at the units.

After a complete check-up has been made, estimate all materials and tools needed, and send them to the job.

Drilling Holes

An electric drill is useful for this work, and all holes should be drilled before any other work is started.

In old buildings, a one-inch hole is sufficient, but in buildings under construction, one and one-quarter inch hole should be drilled, as it is good practice to run one inch heater tubing as a protection for the copper tubing.

This will prevent workmen from driving nails through the tubing. When "roughing in" a new building, and it is necessary to run the tubing a long time before the installation will be finished, be sure to seal the ends of the tubing to keep dirt and moisture out, or better still, put in the heater tubing and the steel valve

boxes before the walls are lathed and plastered in such a way that the tubing can be pulled in after the building is finished.

All tubing in a new building will, of course, be run between the walls. In an old building, the same procedure should be followed, if possible.

When it is necessary to run tubing outside of walls, consideration should be given to the layout in order that the tubing will go through at inconspicuous places. It is well to take them through cupboards where possible. Where running in exposed places, cover them with half round moulding.

Running Refrigerant and Water Lines

All units up to and including the 1/2-hp. model use 1/2-in. suction line tubing; 1 and 2-hp. models use 3/4-in. tubing; 2, 3 and 5-hp. models use two 3/4-in. suction lines and 1-in. pipe; and 7 1/2 and 10-hp. machines use 1 1/2-in. pipe.

1. Pull all upright or riser tubing first. Fasten, where possible, with 3/8-in. pipe straps insulated with friction tape to prevent transmission of any noise from the unit.

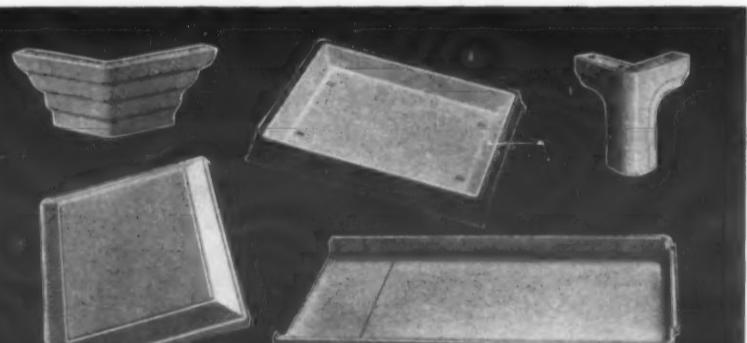
2. Secure the valve boxes in place, and connect the valves to the lines. Be sure to leave some slack in the tubing for future flaring in case a flare is broken.

3. Run basement lines. In running horizontal lines, it is well to have a slight slope from the risers or the cooling units to the condensing unit.

Avoid traps in the line, as oil may collect in them and cause erratic operation. This is especially true where horizontal runs converge over the condensing unit. If oil is trapped in one of these, the other one will get most of the refrigeration.

To increase the capacity of the suction lines and cut down frictional losses, the larger compressors are equipped with 3/4-in. suction line valves so that 3/4-in. tubing may be used.

(Concluded on Page 15, Column 1)



MODERN CABINET DESIGN

Demands Massive, Deep Drawn Steel Stampings

Give yourself complete freedom in designing refrigerator cabinets with massive, deep drawn stampings that add beauty and new features to meet modern trends. Our enormous equipment produces large, uniform, completely press-formed shapes of accurate dimensions at low cost. We specialize on tops, doors, side panels, door liners, etc.—ready for assembly with other parts fabricated in your plant. Now serving several leading manufacturers.

Mail blue prints for quotations.

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TRUSCON

GIVES INSTALLATION & SERVICE METHODS IN COMMERCIAL JOBS

(Concluded from Page 14, Column 5) run from the compressor to the point where the risers branch off. These risers should be $\frac{1}{2}$ -in. tubing.

4. Condensing units are equipped with pressurestats. The controls are all mounted on the condensing unit base, with the exception of the ones on the $\frac{1}{4}$ -hp. and $\frac{1}{2}$ -hp. models.

Where the LS Penn control is used, the additional power element is connected with a $\frac{1}{4}$ -in. tube and tee to the water valve and the high pressure side of the system. These connections are made at the factory. When installing these units, it is only necessary to connect the one power element to the suction line with a tee.

When installing a $\frac{1}{2}$ -hp. or a $\frac{1}{4}$ -hp. condensing unit, the control should be mounted on the wall and connected into the high and low pressure sides of the systems as described above.

5. The water lines should be run in such manner that the system may be drained in case the basement should ever be subject to freezing, and should have a shut-off valve close to the unit for service purposes. The water control valve is mounted on the machine.

6. Run electric wiring to the motor and the control; use 220 volt, 3-phase current wherever possible. Some of the larger units are equipped with automatic starter switches. These switches carry the current so that the pressurestat merely acts as a pilot switch.

7. Now connect the freezing units and secure the expansion valve capillary tubes to the suction line as close to the units as possible.

After completing the hook-up, go over all the flare nuts with the wrenches, and see that all have been tightened. The Turner Halide Leak Detector is useful for this purpose.

Starting Up

1. After testing for leaks as outlined above, start the system, first being very sure that all line valves are open.

2. Check the cut-in and cut-out pressure of the control.

3. Check the expansion valve. If there is a hissing noise, it is vapor, and either the valve is not properly adjusted, or the system is low on refrigerant. If you hear a gurgling noise like water running from a bottle, it is liquid passing through, and is working properly.

4. In the case of a water-cooled unit, set the water valve so that the water leaving the condenser is approximately 15° higher than the temperature of the water at some nearby tap after it has run for a short time. This setting provides economical operation. Check the unit to see that the water shuts off when the motor stops.

Checkup the Following Day

1. Look over all the joints for oil. If oil appears, it indicates a leak.

2. Check the temperatures of the cabinets or coolers.

3. Check the settings of the expansion valve. When the correct temperature is maintained, the expansion valve should be so set that frost appears on the suction line between the coil and the thermostat bulb. If it goes beyond this bulb, the flow should be cut down by turning the adjustment to the left, a quarter of a turn at a time, until the fault is rectified.

Explaining operation of the compressor, Universal engineers show that the vapor from the suction line enters the compressor through the suction line valve, passing from there up through the suction valve in the head of the piston into the cylinder.

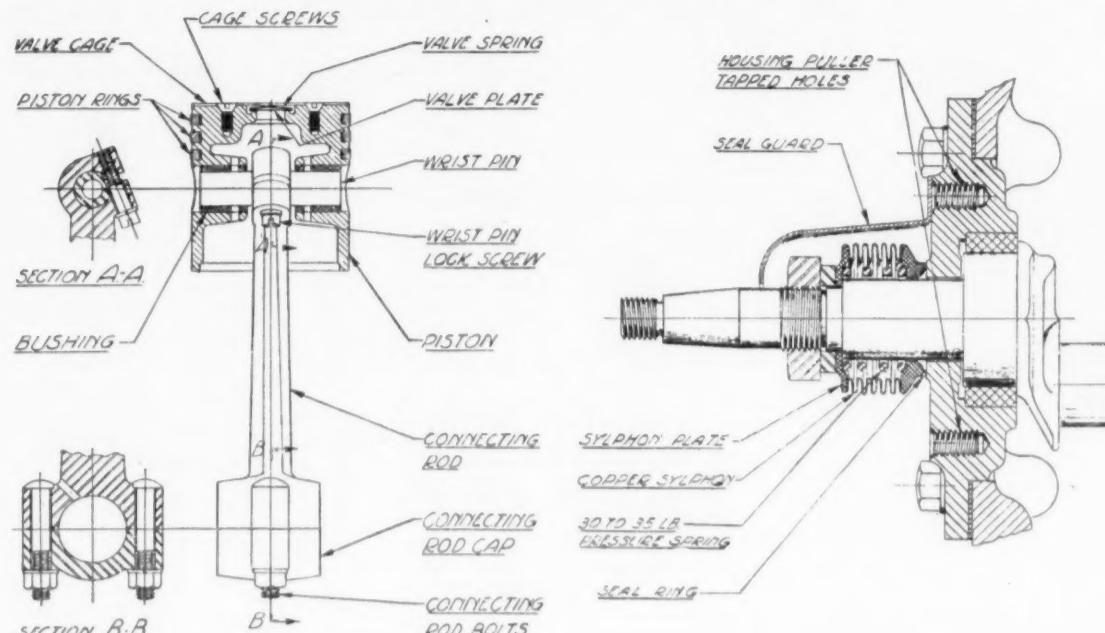
The suction valve opens on the down stroke of the piston, allowing the cylinder to fill with refrigerant vapor. On the up stroke of the piston, the suction valve closes, and the vapor is forced through the discharge valve into the high pressure side of the system. From there, it passes from the cylinder head to the condenser.

For testing the compressor there are line valves bolted to the compressor at both the suction and discharge points, making it possible to remove the compressor for repairs by shutting off both valves, unbolt them, and taking out the bolts that hold the compressor to the base. The compressor should always be tested before it is removed, as it is then possible to test its pumping ability and locate undue noise.

To test the operation of the compressor, it is only necessary to shut off the line valves by turning the stems as far as they will go, remove the plugs from the gauge connection on the valves, and let the compressor run with air going through it for a few minutes.

If air is discharging from the port on the top line valve, showing that the valves are working, install a pressure gauge in this port, screwing it tight so that there will be no leak,

Component Compressor Parts



Connecting rod assembly (left) and cross-section of a shaft seal (right) of a Universal commercial compressor.

start the compressor, and let it pump until the gauge shows about 200 lbs. per sq. in.

It should pump this pressure quickly and steadily. Stop the machine and watch the gauge. If the pressure holds, or if the needle drops back very slowly, you may be sure that the discharge valve is in good working order.

If the compressor fails to pump the required 200 lbs. pressure, but holds what pressure it does pump when the compressor is stopped, the discharge valve is working properly, but the fault is in the suction valve, or possibly the piston rings.

After making the test as outlined above, and determining that a valve is at fault, it should be removed and examined. Dark spots on the valve disc may indicate foreign matter which was holding the valve open, or a distorted valve disc.

If the valve seat is not damaged, the valve can be repaired by replacing the disc. If the compressor valves are the only thing at fault, you will find it much easier and more economical to replace them rather than the entire compressor.

Cleaning and Oiling the Compressor

Whenever the compressor is disassembled for any purpose, or the bottom plate removed to examine the bearings or connecting rod, it is good policy to discard the oil and replace it with new clean oil.

Use only refrigerating oil purchased for use in our machines, as this oil has been specified particularly for this equipment. This oil we supply is perfectly dry, and must be kept sealed air tight in containers until it is used. If a can has been left open, discard it or use it for oiling motor bearings.

Seal

The seal on the compressor provides a leak-proof joint at the point where the crankshaft extends to the outside of the crankcase. It prevents leakage of refrigerant or oil both when the shaft is revolving, and when it is stopped. The seal is located on the outside of the crankcase where it is accessible.

The seal is attached to the crankshaft and revolves with it, with the seal bearing or seal nose resting against a lapped face on the compressor housing plate. The spring inside of the seal holds the seal nose firmly against the plate.

These two surfaces where they make contact are perfectly flat, and lapped smooth, which makes a leak-proof joint at all times. A flexible metal bellows allows the seal nose to find its own alignment so that no misalignment can hold the two surfaces apart.

A seal leak may be caused by a wear of the two bearing surfaces that roughens one or both of them, and destroys the perfect contact. This is usually caused by some foreign batter or abrasive getting between the two faces and starting a cutting action.

Before removing the seal to examine the faces, it is necessary to shut off the two compressor line valves so that the refrigerant charge will not be lost. After this is done, remove the flywheel and the seal cover which is screwed to the front of the crankcase, then unscrew the nut from the crankshaft that holds the seal in place, and remove the seal. Send the seal and housing plate back to the factory for replacement.

A housing plate with a scored seal face can be repaired by refacing the face in a lathe, and lapping it on a surface plate or with a true stone. The final lapping should be done with a mixture of powdered Bon Ami and oil on a true razor hone, as the sur-

face, no gasket is required. The brass seal plate fits against a shoulder on the shaft, and holds a pressure perfectly if the nut is tight.

When a housing plate is removed for any purpose, or replaced with a new one, a new gasket must be used. When replacing the housing plate, pull up the cap screws evenly to assure perfect alignment and freedom from leaks.

The Piston Assembly

The piston assembly consists of the piston, wrist pin, suction valve parts, and a connecting rod. The connecting rod has a split bearing which can be tightened, if necessary.

Owing to the necessity of a perfect fit on the wrist pin, pistons, connecting rods, and wrist pins are not sold separately, as it is advisable to fit these parts together at the factory.

If a wrist pin bearing is loose, the entire piston assembly should be replaced, and the damaged one returned to the factory for repair.

If the main connecting rod bearing is loose, it can be tightened by filing the flat surface of the bearing cap. This must be done very carefully, removing an even amount of metal all the way across the flat side of the bearing cap to insure a proper fitting bearing after reassembling.

Discharge and Suction Valves

As a rule, any failure of these valves to hold properly is caused by foreign matter between the valve disc and the valve seat, or by a bent and distorted valve disc. An examination of the disc and valve seat will quickly tell you which is at fault. If the valve seat is damaged the entire assembly should be replaced, while if the disc is at fault, it can be replaced quite readily.

Black marks or spots on the valve seat of disc indicate foreign matter that has held the valve open, or a distorted valve disc. In many cases, thoroughly washing the parts overcomes the difficulty.

The Kelvinator Oil Burner is what they've wanted —and They Told Us So!

Even the critical "trade" got excited about the new Kelvinator Oil Burner, on display for the first time at the annual A.O.B.A. Show in Chicago.

Here was something really new! A burner of revolutionary design, providing a new and different selling story for the public! A burner with so many exclusive features that it literally shuts out competition!

It is the oil burner that dealers have wanted—and they told us so. These are some of the advantages which have focused the interest of the home heating industry upon it:

- "Split-Degree" flame—sensitive to temperature changes of one-sixth of a degree
- Continuous, uniform heat—no "cold 70"
- Installation without pulling fire
- Use of heating plant as incinerator
- No delicate electrical controls
- Mechanical hydrothermostat

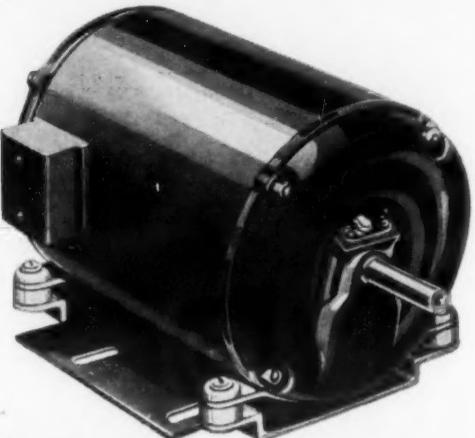
Desirable territories are now available for those who wish to profit from Kelvinator's 44-week oil burner selling season, and from the score of other sales advantages possessed by no other oil burner.

Manufactured by
Kelvinator Corporation, Detroit, Michigan

Oldest Manufacturer of Domestic Electric Refrigerators

(112)

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A simplicity of parts is the answer. When Howell engineers built the capacitor inside the motor frame, they also simplified construction. No commutator, no wire-wound rotor, nothing to get out of adjustment on these fractional horsepower motors.

This new motor gives you satisfactory and economical service over a long period of time with a minimum of attention. It starts smoothly and quietly, is quiet in operation, and has a liberal overload capacity. This is why it should be your choice for electric refrigerator and other home appliance application.

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Howell Michigan
Pioneer Builders of Capacitor Start Motors



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Canton, Ohio

Division of Continental Steel Corporation

Superior
Galvannealed
PATENTED PROCESS

New York's Proposed Oil Burner Code May Grant Authority to New Board

NEW YORK CITY—A hearing on the proposed revision of the oil burner code of the Board of Standards and Appeals of this city has been held and adjourned subject to a call by the board.

Two principal objections were raised against the revised code. The first is that the new McCall law would seem to take the authority from the Board of Standards and Appeals and grant it to the new Board of Commissioners. The matter as to which body has the authority will be settled at a future hearing.

The other principal objection was that the old code should have been printed with the proposed revisions so that any one could readily see the changes as intended.

The proposed revised code follows in full:

OIL BURNER RULES

Rules Covering the Installation and Use of Oil Burning Equipment and the Storage of Oils Used in Connection Therewith

(Superseding Fuel Oil Rules adopted by the Board of Standards and Appeals Nov. 6, 1919; amended Jan. 6, 1922; Jan. 18, 1924; Oct. 19, 1926; Sept. 11, 1928; Jan. 11, 1929; March 20, 1931; May 12, 1931; Nov. 24, 1931; May 10, 1932; June 24, 1932; and Nov. 4, 1932.)

Authority: Section 718 A of the Charter of the City of New York to carry into effect the provisions of Chapter X, Code of Ordinances.

Rule 1. Scope

(a) No person shall install oil-burning or oil-storage equipment for use within the City of New York except as provided in these rules.

(b) These rules shall not apply to gas companies storing or using oil in the manufacture of illuminating gas for public use.

Rule 2. Definitions

For the purpose of these rules the following terms shall be interpreted in accordance with these definitions:

APPROVED: Shall mean devices hereafter approved by the Board of Standards and Appeals and also approved, listed as standard, and/or labeled by any nationally recognized standard testing laboratory not operated for commercial profit, provided all such devices are installed in accordance with these rules. Such approval is subject to suspension or revocation for non-compliance with these rules. All devices approved by the Board of Standards and Appeals installed prior to the adoption of these rules shall be accepted.

BURNER: A device designed for the purpose of burning oil.

DISCHARGE LINE: That portion of the line between the discharge outlet of the pump and the burner oil inlet connection.

ELECTRICALLY GROUNDED: For protection against lightning shall mean storage tanks set directly in or on the ground and/or with underground piping connections. Where storage tanks without underground piping connections are built on bases above the surface of the earth, such storage tanks shall be grounded at two (2) points, 180° (degrees) apart as follows:

(1) The conductor from tank to ground connection shall be of copper not smaller than No. 6 (.162") A.W.G. wire, or pipe not less than one-half inch (1/2") in diameter.

(2) One end of conductor shall be permanently and electrically bonded to tank. The other end shall be bonded to a ground connection consisting of a water pipe or a rod, pipe or plate having a surface area of not less than one hundred and ninety (190) square inches, buried in moist earth not less than two feet (2') below the surface of the earth.

FILL PIPE: That portion of the line between the fill pipe terminal and the fill pipe connection in the storage tank.

FULL DISCHED HEAD: A head having a curvature with a radius not greater in length than the diameter of the tank.

MASONRY: Shall mean constructed of brick, stone, concrete, hollow building blocks, or a combination of these materials as set forth in the Code of Ordinances, Chapter V, Article 13, Section 251.

OIL: Any liquid mixture, substance, or compound derived from petroleum, including kerosene and fuel oil as defined in the Code of Ordinances, Chapter X, Article 1, Section 1.

OIL LEVEL INDICATING DEVICE: A means by which the level of the oil in a storage tank may be indicated.

PERMIT: Shall mean permit for storage of oil.

PORTLAND CEMENT CONCRETE: Shall mean a mixture of one (1) part cement and not more than two and one-half (2 1/2) parts sand and five (5) parts of coarse aggregate and complying in all other respects with the requirements of the Code of Ordinances, Chapter V, Article 2, Section 28.

PREHEATER: A device designed for heating oil for the purpose of decreasing the viscosity.

RELIEF VALVE: A valve held shut by a spring or other means to automatically relieve pressure in excess of its setting.

RELIEF LINE: That portion of the line between the by-pass connection of the relief valve and the supply line or storage tank.

REMOTE CONTROL: A hand, electric, or mechanically operated device to shut off the oil supply. A thermostat is not acceptable as a remote control.

SCAVENGING LINE: A line installed to permit the removal of water or foreign matter from a storage tank.

SHOP FABRICATED: Shall mean completely built in the shop of the tank manufacturer.

SHUT-OFF VALVE: A device that can be actuated to prevent the flow of liquid in a line of pipe.

STORAGE CONTAINER: Any container for oil connected to a burner or oil-burning heater and having a capacity of ten (10) gallons or less.

STORAGE TANK: Any container for oil having a capacity of two hundred and seventy five (275) gallons or more, having

a fill line and vent line connected thereto.

SUPPLY LINE: That portion of the line between the storage tank and the pump oil inlet connection. Where a pump is not used, it shall be that portion of the line between storage tank and burner and burner oil inlet connection.

TEST WELL: An opening in the top of the storage tank or a straight pipe connected to such opening through which a gauge stick may be inserted into the storage tank.

TRANSFER PUMP: An oil pump that is not an integral part of the burner and which is installed between storage tank and burner.

VENT PIPE: That portion of the line between vent pipe terminal and vent pipe connection in the storage tank.

Rule 3. Oil Permitted

Oil permitted under these rules shall be any liquid mixture, substance, or compound derived from petroleum, shale oil, coal tar, and the liquid products thereof, and shall have a flash point not lower than 100° F. when tested in a Pensky-Martens closed cup tester. (American Society for Testing Materials Method D93-22.)

Rule 4. Burners

(a) Burners, including oil-burning heaters, shall be approved type, provided with suitable safeguards to prevent abnormal discharge of oil.

(b) Approval of burners or oil-burning heaters designed for installation with storage of not more than ten (10) gallons shall include approval of storage containers and limitations of installation. If more than ten (10) gallons' storage is desired for such burners or oil-burning heaters, a storage tank shall be installed as provided for in these rules. Portable containers of not more than ten (10) gallons' capacity may be filled from such storage tanks by means of an approved hand pump located above the top of the tank.

(c) These rules shall not apply to oil stoves, oil heaters, or oil lamps, commonly used for household purposes, which employ capillary wicks essential to continuous combustion, or to portable apparatus such as blow torches, soldering pots, tar heaters, snow melters, etc.

Rule 5. Material and Construction of Tanks

Section 1. All tanks except vertical above-ground storage tanks.

(a) All storage tanks for oil of two hundred and seventy-five (275) gallons' capacity or more shall be built of new full weight American open hearth tank steel, free from physical imperfection. They shall be welded; or riveted and welded; or riveted and caulked. Filler of any kind between plates is prohibited. The minimum thickness of shell and bottom plates shall be one-quarter inch (1/4") and the minimum thickness of roof plates shall be one-eighth inch (1/8") and in no case shall the construction of the tank be less than the standard requirements of American Petroleum Institute specifications.

(b) The roofs of vertical storage tanks shall be designed to shed water and shall be permanently grounded to the tank shell. This, however, shall not exclude the use of floating steel decks.

(c) All above-ground storage tanks shall be electrically grounded.

(d) Vertical above-ground storage tanks shall show no distortion or leaks when completely filled with oil.

Rule 6. Location of Storage Tanks

Section 1. Inside of buildings.

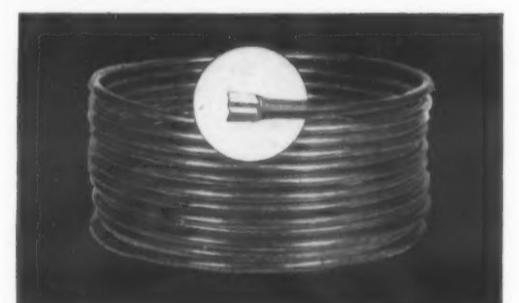
(a) Storage tanks having a capacity of two hundred and seventy-five (275) gallons may be installed above ground in or on the lowest story of a building, provided such tanks shall be mounted on substantial incombustible supports, permanently attached to tanks, and located not less than seven feet (7') measured horizontally from any furnace or source of exposed flame unless tank is protected as provided for in Rule 6, Section 1 (b). Such storage tanks inside buildings shall be not less than two hundred and seventy-five (275) gallons' capacity and not more than one such tank shall be connected to one burner. Not more than two (2) two-hundred-and-seventy-five (275) gallon storage tanks shall be installed in a building above ground without protection as provided for in Rule 6, Section 1 (b).

(b) Storage tanks having a capacity of more than two hundred and seventy-five (275) gallons, when installed inside of buildings, shall be located in or on the lowest floor level and all portions of such tanks above the floor shall be protected by a jacket of not less than four inches (4") of Portland cement concrete reinforcement with not less than No. 20 steel wire gauge wire cloth 2"x2" mesh, and extending at least four inches (4") beyond the horizontal outline of tank in all directions.

A storage tank may be placed in an enclosure having masonry walls not less than eight inches (8") in thickness and of dimensions six inches (6") greater on all sides than the outside dimensions of the storage tank. The walls of the enclosure

(Concluded on Page 17, Column 1)

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CHANGES PROPOSED IN OIL BURNER CODE

(Concluded from Page 16, Column 5) ure shall be carried up to a height not less than one foot (1') above the top of the tank and the space between the tank and the walls of the enclosure shall be completely filled with clean sand or well tamped earth.

(c) The capacity of individual storage tanks located inside of buildings shall not exceed twenty thousand (20,000) gallons.

Section 2. Outside of buildings, below ground.

Storage tanks located outside of buildings, below ground, shall be buried with the top of the tank not less than two feet (2') below the surface of the ground. Tanks shall be surrounded by clean sand or well tamped earth, free from ashes or other corrosive substance, and free from stones larger than will pass through a one-inch (1") mesh.

Section 3. Outside of buildings, above ground.

(a) Storage tanks located outside of buildings above ground shall be not less than one and one-quarter (1 1/4) tank diameter and in no case less than ten feet (10') from the line of adjoining property, the nearest building or adjacent tank. Such tanks shall be electrically grounded. The maximum capacity of individual tanks located outside of buildings above ground shall be fixed by the following schedule:

If distant 25 feet from line of adjoining property which may be built upon	16,000 gallons
If distant 30 feet.....	24,000 "
If distant 40 feet.....	36,000 "
If distant 50 feet.....	48,000 "
If distant 60 feet.....	60,000 "
If distant 75 feet.....	96,000 "
If distant 85 feet, or more...100,000 "	

(b) Above-ground storage tanks shall be protected by an embankment or dyke. Such protections shall have a capacity of not less than one and one-half (1 1/2) times the capacity of the tank so surrounded and shall be at least four feet (4') high but in no case higher than one-fourth (1/4) the height of the tank when the height of the tank exceeds sixteen feet (16'). Embankments or dykes shall be made of earthwork with clay core; of masonry, or of impervious reinforced concrete. Earthwork embankments shall be firmly and compactly built of good earth, free from stones, vegetable matter, etc., and shall have a flat section at the top of not less than three feet (3'), and a slope of at least one and one-half (1 1/2) to two (2) on all sides. Concrete or masonry dykes shall be so designed as to safely carry the entire volume of the oil in the tank so surrounded. Embankments or dykes shall be continuous and unpierced.

Rule 7. Piping

Section 1. Installation of piping.

(a) Piping shall be run in a substantial and workmanlike manner. Exposed piping shall be protected against mechanical injury and shall be securely supported with rigid metal fasteners or hangers.

(b) Only new standard full-weight iron, steel, or brass pipe, or new extra-heavy copper or brass tubing, may be used. Flexible tubing, when used, shall be of fireproof material. Soldered connections are prohibited.

Section 2. Relief valves.

(a) Where a shut-off valve is installed in the discharge line from an oil pump, a relief valve shall be installed in the discharge line between the pump and the first shut-off valve.

(b) Oil preheaters shall be provided with relief valve to prevent excessive oil pressure.

(c) Relief valves shall be set to discharge at not more than one and one-half (1 1/2) times the maximum working pressure of the system. The discharge from relief valves shall be returned to storage tank or to the supply line. There shall be no shut-off valves in the line of relief.

Section 3. Vent pipe.

(a) An open vent pipe of iron or steel, without trap, and draining to the tank, shall be provided for each storage tank. The lower end of the vent pipe shall not extend through the top of the storage tank more than one inch (1"). Cross connection

between vent pipe and fill pipe is prohibited.

(b) Where a battery of storage tanks, designed to hold the same grade of oil, is installed, vent pipes may be run into a main header.

(c) Vents shall be not less than one and one-quarter inches (1 1/4") in diameter for storage tanks up to 1,100 gallons' capacity and not less than two inches (2") in diameter for storage tanks of 1,100 gallons and more.

(d) Vent pipes shall be provided with weatherproof hoods and shall terminate outside the building not less than three feet (3') nor more than twelve feet (12') above the fill pipe terminal. If the vent pipe terminal is not visible from the fill pipe terminal location, a one-inch (1") line shall be connected to tank and shall parallel the fill pipe and terminate at the fill pipe terminal with unthreaded end. Such line shall be provided with a check valve set to prevent flow of surface water to storage tank.

Section 4. Fill pipes.

(a) Fill pipe shall terminate outside the buildings with the fill pipe terminal located at or above grade at least five feet (5') from any building opening or subway grating below the level of the fill pipe terminal. Such fill pipe terminal shall be not more than twenty feet (20') from the curb or driveway.

(b) Each storage tank shall be provided with a separate fill pipe except where a battery of tanks is installed, containing the same grade of oil, a common fill and header pipe may be installed provided the area of each branch fill pipe and the header pipe is equal to the area of the fill pipe. Each branch fill pipe shall be provided with a shut-off valve.

(c) Where the top of the storage tank is above the fill pipe terminal the fill pipe shall be connected to the top of the tank and be provided with a shut-off valve and swing check valve which shall be located at the fill pipe terminal.

(d) Fill pipe terminal shall be designed to prevent tampering by unauthorized persons and shall be provided with raised letters reading: "Fuel Oil".

(e) Fill pipes shall be designed to prevent escape of oil vapor from storage tanks at fill pipe terminal.

Section 5. Heating coils in storage tanks.

All heating to reduce viscosity of oils in storage tanks in any building shall be only by means of hot water or low pressure (ten (10) pounds per square inch maximum) steam coils.

Section 6. Scavenging line.

When a scavenging line is installed it shall terminate outside of the building and shall be capped oil tight when not in use.

Rule 8. Valves and Control of Oil Flow

(a) Each supply line from storage tanks of two hundred and seventy-five (275) gallons' capacity shall be provided with a shut-off valve at the tank and when connected to burners designed for gravity feed, shall be provided with an approved constant level device.

(b) Each supply line for storage tanks of more than two hundred and seventy-five (275) gallons' capacity, where the top of the tank is above the oil inlet connection to the burner and/or transfer pump, shall be provided with an approved anti-siphon device located at the highest point in supply line, except that where heavy oil (No. 6 Commercial Standard Grade) having a viscosity of one hundred (100) seconds or more Saybolt Furol at one hundred and twenty-two degrees Fahrenheit (122° F.) is used the anti-siphon device shall not be required.

(c) Oil from storage tanks of two hundred and seventy-five (275) gallons' capacity or more may be delivered to burners installed above the lowest floor of building only under the following provisions:

1. Such burners shall not be installed above the third floor level in any building. In no case shall oil be delivered to a height greater than 50 feet (50') above the street level. Only one oil delivery line shall be installed for each floor.

2. Oil delivery lines to burners located above the lowest floor of a building shall not be larger than two inches (2") iron pipe size.

3. The pressure in oil lines to burners located above the lowest floor of a building shall not be more than is necessary to deliver oil to the burners and such pressure shall not in any case exceed thirty (30) pounds per square inch.

(d) A remote control shall be provided whereby the flow of oil to any burner can be stopped, and such remote control shall be located either inside or outside the entrance to the room in which the burner is located and as close to such entrance as practical, and shall be legibly labeled "Remote Control for Oil Burner."

(e) Except as provided by Rule 4 (b) of these rules for approved combination burner and storage container devices, pressure in storage tank or container for the purpose of discharging oil is prohibited.

Rule 9. Oil Level Indicating Device and Test Wells

(a) Oil level indicating devices shall be constructed of substantial material so designed that there can be no leakage of oil or oil vapor.

(b) Test wells shall terminate outside of buildings and shall be capped oil tight and kept closed when not in use.

(c) All tanks located inside of buildings shall be provided with an oil level indicating device. Test wells shall not be permitted in tanks located inside of buildings.

Rule 10. Permits, Inspections and Tests of Storage Tanks and Piping

Section 1. Permits.

(a) No oil installation of more than ten (10) gallons' capacity shall be operated until after a permit has been issued by the Fire Commissioner.

(b) Application for permit shall be made on a form furnished by the Fire Commissioner and shall provide for the location of the building in which the installation is to be made, name and address of owner and/or occupant, name and address of installer, make and approval number of burner, capacity, number, and location of storage tanks, together with such other information as may be required by the Fire Commissioner.

(c) No permit shall be issued until the installation has been inspected by a representative of the Fire Commissioner.

Section 2. Inspection and tests of storage

tanks and piping.

(a) Storage tanks of two hundred and seventy-five (275) gallon's capacity and all piping connected thereto shall show no leakage when completely filled with oil or water as follows:

(b) Storage tanks of more than two hundred and seventy-five (275) gallons' capacity and all piping connected thereto shall show no change in shape, rupture or leakage when subjected to a hydrostatic test with oil or water as follows:

(c) Oval, obround, rectangular, and specially shaped storage tanks and piping connected thereto, twenty (20) pounds per square inch.

(d) Cylindrical storage tanks and piping connected thereto, fifty (50) pounds per square inch.

Pressure shall be applied for a period of 10 minutes, released for five minutes, and again applied for a period of ten minutes. When oil is used there shall be no fire or flame in the room or rooms in which the test is being conducted. All tests shall be conducted in the presence of a representative of the Fire Commissioner. The contractor shall furnish all necessary equipment for conducting tests, except gauges which shall be furnished by the Fire Commissioner.

Rule 12. Ventilation

(a) No burner shall be installed in any boiler, heater, range, or stove unless such boiler, heater, range, or stove is connected with a legal chimney. (See Code of Ordinances, Chapter V, Article 19.)

(b) Adequate ventilation, at least equivalent to area of the smoke pipe at the point where it enters the flue, shall be provided in all rooms in which burners are installed.

Rule 13. Automatic Pumps

Automatic pumps, when not an integral part of the burner shall be of approved type, provided with automatic means for preventing continuous discharge of oil in case of pipe breakage.

Rule 14. Fire Protection

(a) The clear distance between any non-insulated parts of boilers, furnaces, or other heating apparatus, including smoke pipe connections to flues and combustible material, shall not be less than eighteen inches (18"). Where such parts are insulated by two inches (2") of asbestos or equivalent, the clear distance shall be not less than nine inches (9").

(b) No rubbish or other combustible material shall be stored within five feet (5') of heating apparatus.

(c) Burners and all accessories, including tanks and piping, shall be maintained oil tight and kept clean at all times.

Rule 15. Instruction Cards

Cards, giving complete instruction for the care and operation of the system shall be permanently fixed near the apparatus in readable condition. Where burners or oil-burning heaters designed for use with storage of not more than ten (10) gallons' capacity (Rule 4 (b)) are installed, there shall also be posted a copy of the approval specifications in addition to the instruction card herein provided for.

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DISTRIBUTOR HOLDS THREE-DAY SCHOOL

NASHVILLE, Tenn.—Leonard electric refrigerator dealers in Nashville and middle Tennessee recently attended a three-day school held for them by McWhorter-Weaver & Co., distributor here.

Among those attending were Chester Hatcher, Clarksville; C. W. Harper, Gallatin; G. L. Butler, Lewisburg; Claude Haines, Shelbyville; M. M. Bidwell, Pleasant View; William New, Woodbury; Wayman Hillis, McMinnville; E. Chapman, Pulaski; and C. F. Sides, Detroit.

Officials of McWhorter-Weaver & Co. announced the appointment of a number of middle Tennessee dealers, among them the Brenner Furniture Co., Clarksville; Cook Outfitting Co., Columbia; Brown Furniture Co., Dickson; Hobbs-Sloan Co., Fayetteville; Wakefield & Butler, Lewisburg; Hillis Hardware Co., McMinnville; F. E. Chapman, Pulaski; and T. D. Lawson, Tullahoma.

G-E SALESMAN GETS 25 ORDERS IN ONE WEEK

CHICAGO—S. W. Doty, retail salesman for one of the South Side stores of R. Cooper Jr., Inc., Chicago G-E distributor, went home the night of June 30 feeling that he had just completed a week's work well done. Between June 24 and that night, he made 25 separate refrigerator sales. Total amount of the sales was \$4,865. Models sold were as follows: one S-107, four HX-47, two HE-5, four S-44, one PL-13, two HE-4, one HE-7, four S-67, and six HX-70.

The Matheson Co. Inc.

East Rutherford, N.J.

REFRIGERATOR



—OILS—

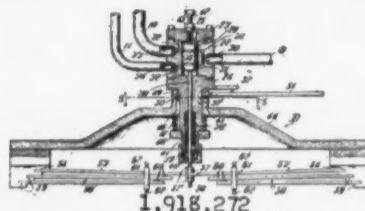
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Crank, Eccentric and Com-
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prices. Write today.
MODERN MACHINE WORKS
156 N. Milwaukee St., Milwaukee, Wis.

PATENTS

ISSUED JULY 18, 1933

1,918,272. THERMOSTATIC CONTROL VALVE FOR REFRIGERATOR CARS. Julius Kopsa, Chicago, and Edmund D. Brigham, Jr., Highland Park, Ill., assignors to North American Car Corp., Chicago, Ill., a Corporation of Illinois. Filed Nov. 6, 1930. Serial No. 493,898. 7 Claims. (Cl. 236—101.)

5. A combined expansion and distributing valve for refrigerating systems comprising a valve body formed with a cen-



tral piston chamber, and inlet passage for liquid refrigerant formed in the body and terminating in two spaced apart restricted branch passages leading into the piston chamber, a pair of similarly spaced restricted passages leading from the piston chamber to a pair of outlet passages, a piston slidably fitted in the chamber and provided with a pair of separate restricted passages, each adapted to align with one of the branch inlet passages, and one of the restricted outlet passages, the

passages in the piston being so spaced that when one of them is in position to complete a continuous restricted passage through the valve body, communication between the other branch inlet passage and aligned outlet passage will be closed by an interposed solid portion of the piston, a valve stem extending from the piston and guided through an extension of the valve body, a thermostat connected with the outer portion of the valve stem for moving the piston, a frame for supporting the thermostat and slidably mounted on the body extention, a spring for urging the assembled frame, thermostat, stem and piston in one direction along the axis of the valve stem, a rotary cam interposed between portions of the frame and valve body and adapted to move the mentioned assembly in opposition to the spring, a lever for moving the cam, and a calibrated dial over which the lever is movable.

1,918,313. SELF-FREEING ICE TRAY. Sven W. E. Andersson, New York, N. Y., assignor to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed May 6, 1931. Serial No. 535,368. 7 Claims. (Cl. 62—105.)

1. The combination with an ice tray adapted to be supported in heat exchange relation with a cooling element, of a handle for said tray, and a wedge associated with said handle in a manner such that it is insertable between the tray and its support responsive to the force exerted on the handle.

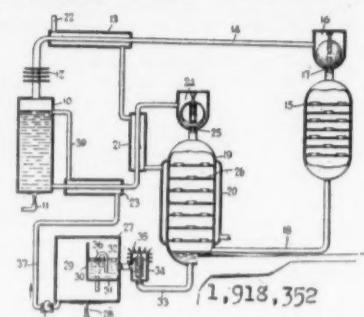
1,918,342. REFRIGERATION. Peter Kohler, Stockholm, Sweden, assignor by mesne assignments, to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Filed March 12, 1931, Serial No. 521,988, and in Sweden May 1, 1930. 14 Claims. (Cl. 62—119.5.)

14. In an absorption refrigeration system of the pressure equalized type, a

vapor liquid lift for circulation of absorption solution, a liquid column pressure relief valve for said lift, and an independent connection to said valve for replacement liquid.

1,918,352. ABSORPTION REFRIGERATING APPARATUS. Robert S. Taylor, Evansville, Ind., assignor to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Filed Jan. 30, 1931. Serial No. 512,307. 7 Claims. (Cl. 62—5.)

1. In a refrigerating apparatus of the continuous absorption type, means for transferring absorption liquid from the



absorber to the generator, said means including a heated vessel and a heat operated valve connected respectively in series between the generator and the absorber.

1,918,437. CONVERTIBLE SWIMMING POOL AND SKATING RINK. Henry Torrance, New York, N. Y., assignor to The Carbondale Machine Co., Carbondale, Pa., a Corporation of Pennsylvania. Filed Sept. 12, 1932. Serial No. 632,723. 19 Claims. (Cl. 62—12.)

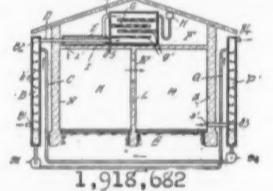
1. A convertible swimming pool and skating rink, including a pit large enough to serve as a swimming pool, a floor in said pit extending across substantially the entire area of said pit and adapted to be sunk to the bottom of the pit and serve as a floor for said pit when said pit is used as a swimming pool or raised to a position near the top of said pit to serve as a skating floor, and means carried by said floor for circulating a refrigerant in heat interchanging relationship therewith to freeze a layer of water above said floor to form an ice-skating surface.

1,918,531. AIR WASHER. Ralph R. Gentry, Spokane, Wash., assignor of one-half to George H. La Barre, Spokane, Wash. Filed Feb. 29, 1932. Serial No. 595,864. 6 Claims. (Cl. 183—12.)

1. In an air-washer the combination with an oil tank, of a separable casing having an intake port and an outlet port and mounted on the tank, means for fastening the casing and tank, means within the washer forming a helicoid passage for air current between the intake port and the outlet port, and said means including filters previous to air and adapted to deflect the air currents.

1,918,682. PROCESS FOR CONDITIONING AIR OR THE LIKE. Edmund Altenkirch, Neuenhagen near Berlin, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a Corporation of Germany. Filed Feb. 17, 1931, Serial No. 516,318, and in Germany Sept. 5, 1929. 8 Claims. (Cl. 62—119.5.)

1. A thermodynamic process for varying the moisture of atmospheric air by means of water vapor absorbing materials,



consisting in exchanging, by means of an air stream, water vapor between a body of absorption material of a given degree of concentration and a similar body of a different degree of concentration, and in the evaporation of the vapor from one body within a temperature range different from the temperature range at which the other body absorbs the vapor, whereby the change in vapor concentration of one body within the lower temperature range is reversed in the higher temperature range, and the change in vapor concentration of the other body within the higher temperature range is reversed in the lower temperature range.

1,918,767. WATER COOLER. Vernon M. Maine, Rhinelander, Wis., assignor to Rhinelander Refrigerator Co., Rhinelander, Wis. Filed March 24, 1932. Serial No. 600,990. 4 Claims. (Cl. 62—44.)

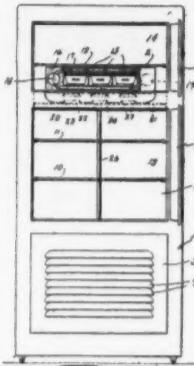
1. The combination with a refrigerator having an opening in the top thereof, of a resilient coupling tube removably mounted in the opening, collapsible means integral with the ends of the tube for lapsing and engaging opposed faces of the apertured portion of the refrigerator, a feed tube supported by and depending from the coupling tube, a reservoir removably mounted on the refrigerator, an outlet nipple depending therefrom and removably seated in the coupling sleeve, and a tank detachably supported in the refrigerator and detachably connected to the feed tube, said coupling tube constituting a sealing connection between the nipple, feed tube and refrigerator.

1,918,794. MERCURY SWITCH. Paul S. Bear, Elkhart, Ind., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Feb. 13, 1930. Serial No. 428,019. 6 Claims. (Cl. 200—152.)

1. A mercury switch comprising an outer envelope, electrodes extending thereto, a pinch seal between said envelope and both of said electrodes, an inner cup of arc resistant material having its closed end adjacent to said pinch seal and supported upon one of said electrodes, the electrode upon which the cup is supported extending thereto, the other electrode extending into the space between the cup and the envelope, and a body of mercury uniting and dividing on a surface of the cup.

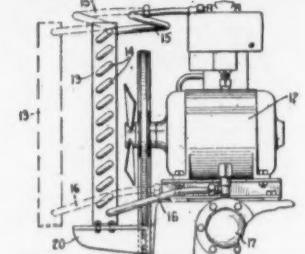
1,918,818. REFRIGERATING APPARATUS. Edgar D. Mianer, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed March 14, 1927. Serial No. 175,358. Renewed Oct. 27, 1932. 14 Claims. (Cl. 62—99.)

8. A refrigerant evaporator for circulating air and for freezing substances, comprising a pair of elongated horizontal



1,918,818

said base and provided with openings for



1,918,981

receiving fastening elements, a water cooled condenser having feet spaced corresponding to the spacing of the openings in said supporting brackets, means to control the flow of water for cooling the condenser, and an auxiliary bracket carried by one of said first mentioned brackets at one side of the same said bracket adapted to support said means.

1,918,978. CONTROL MECHANISM FOR MECHANICAL REFRIGERATING APPARATUS. Maxwell H. Spreen, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed Oct. 7, 1927. Serial No. 224,544. 11 Claims. (Cl. 62—4.)

1. In a mechanically cooled refrigerator, a thermostat responsive to the temperature of the refrigerator and operating to automatically regulate the temperature within said refrigerator, and means operatively associated with the cooling mechanism for changing the temperature of the medium surrounding the thermostat.

MASONITE CASE DECISION REVERSED BY U. S. COURT

PHILADELPHIA—Reversing the decision of the district court in a suit brought by Chicago's Masonite Corp. against the Celotex Co., the United States Circuit Court of Appeals here has ruled that Masonite's patents give it exclusive right to manufacture hard pressed wood boards not only from real wood fibre, but from any "woody materials," when boards are made by Masonite process. Under the Masonite patents, that company has the sole right to manufacture hard boards by taking fibres of wood or woody material apart, then putting them back in a formed slab without the use of some binder.

Appeal of the case hinged on the fact that the district court had declared that the Masonite patents covered only the use of wood fibre from trees. But in its opinion, the appellate court said this:

"Each ('wood' and 'woody material') has a meaning of its own, and to each, properly defined, the patentee is entitled. We think, and therefore hold, that the claims cover any wood or woody material which yields wood fibre in kind and quantity that will produce an article with the characteristics disclosed by the patent when made in the way the patent teaches."



McCord Refrigeration Products

Commercial Evaporators

Domestic Evaporators

Condensers

McCord Ice Trays

Spiral Finned Tubing

Spiral Copper Finned Iron,

Steel or Copper Pipe

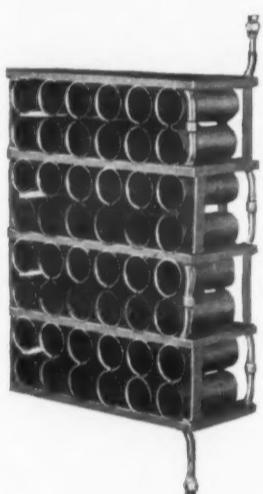
McCord Radiator & Mfg. Co.

DETROIT - MICH.

NEW! LARKIN BOTTLED BEER COIL

NO more wet bottles..bottles without labels..gluey water...groping under water for the right bottle. Now bottled beer can be served dry and at any desired temperature with the aid of this new refrigeration coil developed by Larkin especially for bottled beer.

The brass spring slotted sleeves hold standard size bottles assuring contact with the coils. Made in units holding one case of



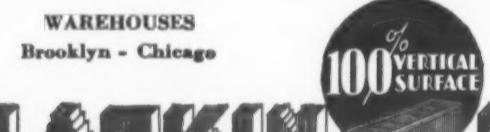
twenty four bottles or multiples. New detailed literature and prices available on request. The Larkin Bottled Beer Coil opens the door wide for increased sales for live-wire distributors and dealers.

LARKIN
Refrigerating Corporation

Originator and
Manufacturers

ATLANTA, GA., U.S.A.

U.S. PATENT NO. 1,776,238.



MUCH DEPENDS UPON THE MOTOR



The Leland refrigerator motor is a special design—intended primarily for refrigerator drive. It is rugged. It is quiet. There can be no shaft distortion due to various forms of thrust. Bulletin No. 28 for particulars.

The Leland Electric Co.
Dayton, Ohio, U.S.A.

Canadian Address
Toronto
Cable Address
Select



Leland Motors

BUYER'S GUIDE

MANUFACTURERS SPECIALIZING IN SERVICE
TO THE REFRIGERATION INDUSTRY

A NEW FIN COIL by PEERLESS

Wedge-locked and edge-locked aluminum fins on tinned copper tubing for methyl chloride, sulphur dioxide, F-12, etc.,—aluminum tubing for ammonia.

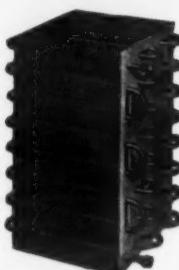
Absolute Metal to Metal Contact.

A Superior Coil in which Soldered Return bends have been eliminated.

Priced to meet 1933 conditions.

Write—Wire for Catalog.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.



Dayton V-Belts

For all makes and types of refrigerators. There is a stock near you. Ask for price list and name of your nearest distributor.

THE DAYTON RUBBER MFG. CO.
Dayton, Ohio
The World's Largest Manufacturer of V-Belts



The Dayton CARRIER Truck

Deliver Your Refrigerators on Rubber

Type X has 53 inch Handles and 8 inch Rubber Wheels. Type Y has 70 inch Handles, 5 inch Rubber Wheels and skids.

Type X with one strap \$16.00
Type Y with one strap \$17.50
f.o.b. Dayton

International Engineering Inc.
Dayton, Ohio
15 Park Row — New York



KRAMER TURBOFIN UNIT COOLERS

Five Models ranging from 20 to 80 lbs. I.M.E. per hour

(Have you a Copy of the New KRAMER CATALOG?)

TRENTON AUTO RADIATOR WORKS

New York, N.Y.
241 W. 68th. St.

Main Office and Factory
TRENTON, NEW JERSEY
Pittsburgh, Pa.
5145 Liberty Ave.

**THE TRADEMARK OF FOUR
PACE SETTERS**
IN COIL EFFICIENCY

RACK'S
KOILS
KOOL

SUR-E-FEX
FAN-E-FEX
HUM-E-FEX
SAN-E-FEX

Fin Coils
Diffusing Units
Non-Dehydrating Coils
Air Conditioning Units

SEND FOR NEW CATALOG DESCRIBING
THESE SENSATIONAL DEVELOPMENTS

REFRIGERATION APPLIANCES, INC.
H. J. KRACKOWIZER, Pres.
1342 WEST LAKE ST., CHICAGO

NORGE
ROLLATOR
REFRIGERATION

**MOLDED PARTS
FOR
ELECTRIC REFRIGERATORS**

Shelf Studs,
Door Knobs,
Dials, Name Plates, Pointers
and Handles, molded of
Bakelite, Durez, Plaskon or Beetle resist
rust, moisture, corrosion and most acids.

Manufacturers of ELECTRIC REFRIGERATORS AND AIR CONDITIONERS should have our Catalogue No. 101. Sent free on request.

CHICAGO MOLDED PRODUCTS CORP.
2155 Walnut St.
Chicago, Ill.

Brunner Commercial Refrigeration plus
an exclusive sales plan spells success.
Write for full information.

BRUNNER MANUFACTURING CO. UTICA, N.Y.

BRUNNER
REFRIGERATING EQUIPMENT

QUESTIONS

Beer Pumps

No. 1308 (Manufacturer, New York)—"We will appreciate your assistance in sending us a list of the various manufacturers of beer pumps."

Answer—Following are beer pump manufacturers listed in our records:

Binks Mfg. Co.
3114 N. Carroll Ave., Chicago, Ill.

Brunner Mfg. Co.
1821 Broad St., Utica, N. Y.

Curtis Pneumatic Machinery Co.
1912 Kienlen Ave., St. Louis, Mo.

Dayton Air Compressor Co.
Valley & Air Streets, North Dayton, Ohio

Dayton Pump & Mfg. Co.
500 Webster St., Dayton, Ohio

DeVilbiss Co.
300 Phillips Ave., Toledo, Ohio

Electric Spray Co.
South Bend, Ind.

Hell Co.
3000 W. Montana St., Milwaukee, Wis.

Ingersoll-Rand Co.
11 Broadway, New York, N. Y.

Janette Mfg. Co.
560 W. Monroe St., Chicago, Ill.

Jiff Co.
Holmesburg, Philadelphia, Pa.

Kraissl Co.
620 Main St., Hackensack, N. J.

Monroe Refrigeration & Engineering Co.
41 Clinton St., Brockport, N. Y.

Oberdorfer Brass Co., M.L.

Syracuse, N. Y.

Quincy Compressor Co.
160 Maine St., Quincy, Ill.

Harold L. Schaefer, Inc.
1620 Harmon Place, Minneapolis, Minn.

E. C. Schleyer Pump Co.
Anderson, Ind.

Water Appliance Co.
605 N. Second St., Milwaukee, Wis.

Ice Cube Tongs

No. 1309 (Distributor, Iowa)—"Please advise us where we can obtain the ice cube tongs recently described in ELECTRIC REFRIGERATION NEWS."

Answer—Henry Paulson & Co., 37 S. Wabash Ave., Chicago, Ill.

Air-Cooled Electrolux

No. 1310—(Distributor, New York)—"We understand that in the early part of the year you carried an article in the News describing the operation of the new gas-operated refrigerator that uses air instead of water for cooling. We would like to get a copy of this issue."

Answer—A technical article describing the new air-cooled Electrolux was published in the March 29 issue of the News.

Freon

No. 1311 (Distributor, New York)—"Please wire the complete address of the company manufacturing Freon."

Answer—Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington, Del.

Modern Housing

No. 1312 (Engineer, Pennsylvania)—"Your recent series of articles dealing with new ideas in houses has interested me very much because this development has been a hobby of mine for several years, and I have some rather definite ideas as to its solution. I will appreciate it if you will furnish me with a list of the principal manufacturers with their addresses, so I can get in touch with them for an exchange of ideas and data."

Answer—Below are listed some of the companies interested in developing modern ideas of housing:

American Rolling Mill Co.
Middletown, Ohio

Elliott Plywood Corp.
Aberdeen, Wash.

Ferro Enamel Corp.
2100 Keith Bldg., Cleveland, Ohio

General Houses, Inc.
Chicago, Ill.

Homes Permanesque of America, Inc.
Cleveland, Ohio

Montgomery Ward & Co.
Chicago Ave., Chicago, Ill.

Sears, Roebuck & Co., Chicago, Ill.

Universal Houses, Inc.
Wal Tower Bldg., Kansas City, Mo.

Automobile Trailers

No. 1313 (Manufacturer, Wisconsin)—"Could you give the address of the company manufacturing trailer equipment as used by General Electric distributors for demonstration of their refrigerators and similar kitchen appliances?"

Answer—Aerocar Company of Detroit, 7424 Melville Ave., Detroit, Mich.

Coin Meters

No. 1314 (Distributor, New York)—"Will you kindly advise us the names and addresses of the various manufacturers of coin boxes for use in connection with retail sales of electric refrigerators?"

Answer—See list on page 211 of the REFRIGERATION DIRECTORY AND MARKET DATA BOOK.

Rotary Compressors

No. 1315 (Engineer, Massachusetts)—"Can you tell me what companies make rotary compressors besides Norge, Sunbeam, Grigsby-Grunow, and Metal Saw & Machine Co.?"

Answer—Additional makers of rotary compressors are:

Frigidaire Corp., Dayton, Ohio

General Electric Co.
Specialty Appliance Sales Department
Nela Park, Cleveland, Ohio
Grunow Corp.
4127 George St., Chicago, Ill.
Narragansett Machine Co.
Vale St., Pawtucket, R. I.

Nema Address

No. 1316 (Training School, Chicago)—"I would like to have you advise me the Detroit address of the National Electrical Manufacturers Association; also the address of the main office."

Answer—Headquarters for the Refrigeration Division of Nema are maintained at 2638 Book Tower, Detroit, Mich. Main offices of the association are located at 155 E. 44th St., New York, N. Y.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion \$2.00; additional words four cents each. Three insertions \$5.00; additional words ten cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccaebes Bldg., Detroit, Mich.

POSITIONS AVAILABLE

MEN WANTED who are capable of handling any phase of refrigeration with a reliable company. Address all communications to Box 581.

EQUIPMENT FOR SALE

WHOLESALE jobbers of repossessed and new electric refrigerators—large stock always on hand. Shipments to all parts of the United States and foreign countries. Keystone Equipment Corporation, 467 Fourth Avenue, New York, N. Y.

INDEPENDENT SERVICE COMPANIES

HALECTRIC Thermostat repair service, Ranco, B & B. Two dollars each, one year guarantee, prompt service. Halectric Laboratory, 1793 Lakeview Road, Cleveland, Ohio.

Kennett Square, Pa. This firm has done considerable development work in household refrigeration with solid carbon dioxide, and controls the American patent rights to the European "Carba" system.

Air-Conditioning Equipment

No. 1322 (Exporter, New York)—"We would appreciate your assistance in putting us in touch with, or giving us names and addresses of, concerns manufacturing refrigeration systems, particularly the air-cooling machines which would be adaptable for the Near East and Far East weather conditions."

"We are interested especially in a machine that will maintain a certain degree of cool atmosphere. We propose to market it in Eastern countries through a central office in Cairo, Egypt."

Answer—Presumably you are seeking a manufacturer of air-conditioning equipment. These are some of the prominent companies in the field: Campbell Metal Window Corp., Pershing Square Bldg., New York, N. Y. Carrier Products Corp., 850 Frelinghuysen Ave., Newark, N. J. De La Vergne Engine Co., Philadelphia, Pa. Frigidaire Corp., Dayton, Ohio. General Electric Co., Air Conditioning Department, 120 Broadway, New York, N. Y. Ig Electric Ventilating Co., 2850 N. Crawford Ave., Chicago, Ill. Kelvinator Corp., 1425 Plymouth Road, Detroit, Mich. J. H. McCormick & Co., Williamsport, Pa. Servel Sales, Inc., Evansville, Ind. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. York Ice Machinery Corp., York, Pa.

CATALOGS

Bakelite

In answer to the oft repeated question "What is Bakelite?" Bakelite Corp. has prepared the brochure, "The Versatile Service of Bakelite Resinoid." The pamphlet sketches very briefly the origin, manufacture, and industrial applications of Bakelite products created from the initial resinoid. It is non-technical in scope.

Westinghouse Air Conditioners

An illustrated 16-page publication entitled "Air Conditioning for Health, Comfort, and Profit," has been brought out by Westinghouse Electric & Mfg. Co. It gives information on the application and advantages of unit air conditioners.

Opening for Specialty Department Manager

A strongly established Detroit wholesale house has an opening for a sales manager to organize and conduct a new household specialty department. Must have experience in hiring, training and supervising wholesale and retail salesmen and in closing new dealers. Give review of business history, references and starting salary. Enclose photograph, if possible. Snapshot will do. Address Box 582, Electric Refrigeration News.

NORGE CORP. FETES CONTEST WINNERS

DETROIT—Quota-making dealers and salesmen of three Norge distributorships have been feted at banquets in Chicago by officials of Norge Corp. recently, according to James A. Sterling, advertising and sales promotion manager. The men were awarded trips to the World's Fair by their distributors for results achieved during sales contests.

When dealers and salesmen of the Onondaga Auto Supply Co., Syracuse, visited the fair July 29 and 30, they were addressed by John H. Knapp, vice president in charge of sales, at a banquet at the Lake Shore Athletic Club.

Earlier in the week, 100 representatives of the Ludwig Hommel Co., Pittsburgh, were guests at a banquet given by the corporation. Speakers at the affair were Mr. Knapp, M. G. O'Hara, Eastern regional manager, and R. E. Densmore, Western regional manager. Howard E. Blood, president, addressed the meeting from Detroit by means of televideo equipment.

Another group of approximately 100 dealers, salesmen, and their wives came to Chicago recently as guests of Moser & Suor, Norge distributor in Kansas City. At the banquet given for them, speakers were Mr. Sterling, Mr. Densmore, and W. C. Rowles, Midwest divisional manager. Fifty of the visiting salesmen were initiated into the Viking Club at this meeting.

Other Norge distributorships which have Century of Progress contests under way are as follows: Bergman Co., Buffalo; Norge-Nestor Co., Jacksonville, Fla.; Norge Co. of Missouri, St. Louis; Brown Electric Co., Oklahoma City; Automatic Sales Co., Houston; Texas Radio Sales, Dallas; Strong, Carlisle, Hammond Co., Cleveland; Harten-Knodel Distributing Co., Cincinnati; Trilling & Montague, Philadelphia.

NORGE LAUNCHES FALL SALES PROMOTION DRIVE

(Concluded from Page 1, Column 5) advertising materials, and will receive cooperation from their distributors in a special newspaper advertising program.

To stimulate effort on the part of retail salesmen, the manufacturer has set aside \$5,000 in cash to be distributed as bonuses among Viking Club members in proportion to results produced before Sept. 1. If sufficient results are produced, the bonus period may be extended, according to J. A. Sterling, advertising and sales promotion manager.

Highest-ranking salesman during the campaign will become president of the honorary organization, while the next will be made vice president, the third, secretary, and the next seven will become members of the Viking council.

Because some salesmen will not be able to qualify for membership in the Viking Club (by making 10 refrigerator sales) during the drive, there has been organized a Norge Norsemen's Club, membership in which calls for only five retail sales.

When these sales have been made, any Norseman will be eligible to compete for a share of \$3,500 which has been put up by Norge Corp. for bonuses for members of the new organization. Norsemen may become members of the Viking Club by making five additional sales and surrendering their Norseman membership.

To instruct Norge dealers and salesmen on details of the drive, a series of meetings for these men is being held in key cities throughout the country.

At the Lord Baltimore Hotel in Baltimore, more than 300 men met on July 27, while on the twenty-sixth upwards of 100 met in Washington. Other meetings have been held in Boston, Springfield, and Kansas City.

At most of these meetings an executive of Norge Corp. speaks for 10 or 15 minutes direct from Detroit by means of televideo equipment.

Norge officials and distributors who met in Detroit recently to lay plans for the campaign are as follows:

Howard E. Blood, president of Norge Corp.; C. D. Donaven, secretary-treasurer; John H. Knapp, vice president in charge of sales; James A. Sterling, advertising and sales promotion manager; C. L. Watkins, assistant secretary-treasurer; M. G. O'Hara, Eastern regional manager; R. E. Densmore, Western regional manager; J. R. Blocher, W. C. Rowles, F. R. Lovegren, and J. E. Oliphant, divisional managers.

Distributors: A. H. Crow and A. E. Bottensfield, St. Louis; B. S. Arnold, Syracuse; S. J. Levy, Buffalo; Ludwig Hommel, Pittsburgh; D. M. Trilling, Philadelphia; L. L. Andrews, Baltimore; Peter Sampson, Chicago; R. P. Harten and H. M. Knodel, Cincinnati; T. W. Carlisle, Cleveland; D. W. Burke and G. N. Totius, Detroit; J. M. Bloch, Indianapolis; J. G. Suor, Kansas City; George Buecel, Louisville; and H. D. Vestal, Minneapolis.

Millionth Visitor



This tot—millionth visitor at the World's Fair Frigidaire exhibit—found this 10-ton air-conditioning compressor a dandy resting place.

FINANCIAL STATEMENT

Westinghouse Electric & Mfg. Co.

EAST PITTSBURGH, Pa.—A net loss of \$1,881,979 is reported by Westinghouse Electric & Mfg. Co. for the quarter ended June 30, 1933. This compares with a net loss of \$2,078,424 for the corresponding period in 1932. (This report refers to the Westinghouse organization in its entirety, and not to the Westinghouse refrigeration division alone.)

The net loss for the quarter just ended was the lowest for any quarter since the second quarter of 1932. There was a net income of \$14,138 for the month of June.

A substantial improvement in operating results was shown for the quarter just passed. Bookings for the quarter are shown to have exceeded the net sales billed for the first time since the first quarter of 1932. They are likewise the highest quarterly bookings for any quarter since the second quarter of 1932.

Sales billed totalled \$21,014,769 as compared with \$15,926,333 for the corresponding quarter in 1932, and \$13,161,721 for the quarter ended March 31, 1933.

Commenting on the report, President F. A. Merrick of Westinghouse Electric & Mfg. Co., stated:

"While our bookings and net sales billed are showing an appreciable improvement they are now only approximately 30 per cent of the 1929 and 1930 level. The losses have been held to their present rate at the existing volume of business as the result of extensive expense reductions. These reductions have been accomplished with better coordination and simplification of activities and methods of handling the work in all departments.

"Overhead expenses, exclusive of depreciation, taxes, and insurance, which are in large measure irreducible, have been reduced approximately 60 per cent from the level of 1929 and 1930.

"Naturally, a portion of this expense reduction has been possible only because of the generally depressed state of business, but a large portion of the results, obtained through simplification of organization, will carry forward into the period of increased business which now seems to be opening."

FRIGIDAIRE INAUGURATES AIR-COOLING CAMPAIGN

(Concluded from Page 1, Column 2) organization heads and managers of company-owned district operations.

Copy being used is a departure from the usual style of Frigidaire. One advertisement shows a hay fever sufferer sneezing, and carries the bold-face caption, "Quick Relief From Hay Fever."

Other copy appeals to business men and home owners to be comfortable in their offices and homes with air-conditioning equipment. Single column copy with an Eskimo and Eskimo dog outside their igloo quotes the northland resident, "It's cool and comfortable here."

This advertisement, as are others, is designed for the use of Frigidaire air conditioning dealers who have equipped their quarters with comfort cooling apparatus for demonstration to prospects.

Still other copy is for the use of commercial establishments that have installed systems and wish to attract the attention of the public to the fact it may shop or eat in comfort.

DEALER DESCRIBES SELLING METHODS

CEDAR RAPIDS, Iowa—Thorough schooling of its sales force and continuous contacting of its prospects is practically all that needs to be written in the story of the success of Buckner's, local dealer for Servel commercial and household refrigeration, which claims to have made approximately two-thirds of all the commercial installations sold in this town during the last four years.

When Buckner's took on the Servel line four years ago it was already established as a successful dealer in radios and other electrical appliances. Taking on a line of refrigeration, however, meant more to this organization than merely putting a few household models on the floor. Says I. C. Buckner, president:

"At the time of our affiliation with Servel we were particularly interested in getting our share of a very large commercial business which was available in our community at that time.

"Through the medium of a complete schooling by the Servel factory in the technical side of refrigeration and by adopting the sales procedure which they had found successful, we put ourselves on a firm foundation for successful refrigeration selling.

"A lot of hard, strenuous effort was required to make our first sale. From that time on it has been progressively easier to convince our prospects of the good points of our product.

"This is especially true of commercial refrigeration since we have always taken great care to figure installations correctly and to install the equipment in such a way that the machines would not only perform as they should, but also speak for themselves as to type of work which we sponsor.

"In expanding our volume of busi-

ness we found it necessary to keep continually in contact with our market. In order to do this we organized a force of trained commercial salesmen. Through a system of prospect cards these men were required to call upon every live prospect at regular intervals."

The reputation that Buckner's has made in the commercial field is making itself felt as a factor in the activity on household models. Prospects seem to have heard of Servel through users of Servel commercial units.

"Our household business is increasing to a point where we are warranted in conducting an intense campaign practically the year 'round,' declares Mr. Buckner. "We require our salesmen to cover the sections of our community in which there is the greatest potential of prospects regardless of the season."

"A large percentage of our recent sales have resulted from salesmen's efforts in punching doorbells during the month of January when Iowa temperatures range from -15° F. to -25° F. I cannot help but feel that these prospects were impressed with a feeling of admiration for the courage and ambition of a man who would attempt to sell them refrigeration when the whole world seemed like a big refrigerator.

"During the coming season, we not only plan to increase our personal activity, but also to launch an advertising campaign which will bring the complete Servel story to the greatest part of our market."

The task of combatting the "low-priced" and "unknown" refrigerators should be taken up by the established manufacturers, Mr. Buckner declares.

"We certainly believe that it is up to the recognized manufacturers to educate their salespeople in such a manner that they can thoroughly convince the prospect that his hard-earned money should be invested carefully with a reputable house whereby he may realize satisfactory return on his investment for many years."

McCord SENDS ICE TRAYS TO STOCKHOLDERS

DETROIT—To engage the cooperation of stockholders and bondholders in introducing its new stainless steel ice cube tray, McCord Radiator & Mfg. Co. is sending a sample with the company's compliments to all stockholders and bondholders who ask for it.

"In expanding our volume of busi-



FIRST CALL for ELECTRIC REFRIGERATION WEEK

Just eight weeks away is September 30 on which begins the third annual Electric Refrigeration Week (Sept. 30 to Oct. 7).

During that week it is expected that more than five hundred cities will put on Cooperative Electric Refrigeration Shows.

They will be sponsored by local Electric Refrigeration Bureaus or by local Electric Clubs or other organizations.

The purpose is to stir up a new wave of buying and the Cooperative Show has proved most effective in drawing large audiences from which a good volume of refrigerator sales has been made right at the show and from which brand new prospects have been discovered and sold within thirty days after the Show.

Every sales outlet should be eager to cooperate, eager to bear its share of the necessary labor and expense, eager to share in the profit. Central stations will



gladly cooperate because every electric refrigerator sold adds to their domestic load and revenue. This is one way in which you can do your share towards keeping the electric refrigeration industry in its position of leadership among the businesses which have already come back.

This is the first call. Be forehand. Do your part towards getting timely action on the Cooperative Electric Refrigeration Show in your community.

As an added incentive, the Electric Refrigeration Bureau is offering \$1,200 in prizes to local bureaus or other functioning organizations for the best shows. This contest is so arranged that the chance of winning is equalized for both large and small communities.

Information about the contest as well as information about the planning and conduct of cooperative shows will be sent on request.

ELECTRIC REFRIGERATION BUREAU

420 Lexington Avenue,
New York City

A Century of Progress Supplement

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC

IN TWO PARTS—PART TWO

REFRIGERATION NEWS

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TEN CENTS PER COPY



The world in 1950 A.D. Or maybe our grandchildren will consider emblazoned architecture of this type old-fashioned and obsolete. Seen at night, when it sheds its most glorious radiance, the main entrance to the Travel and Transport building (above) is a magnificent spectacle.



Ray Cosgrove, manager of the refrigeration division of Westinghouse Electric & Mfg. Co., starts a long journey up the Tower of Progress of the Hall of Science, which is one of the most interesting buildings at A Century of Progress exposition.



From the top of the 628-foot tower of the Skyride, highest spot in Chicago, the south end of the 1933 World's Fair looks like this. The semi-circular structure in the foreground is the Electrical building.

The home appliance section of the Westinghouse exhibit (right) in the Electrical building has been consistently holding and attracting the attention of thousands of Fair visitors, particularly the womenfolk.

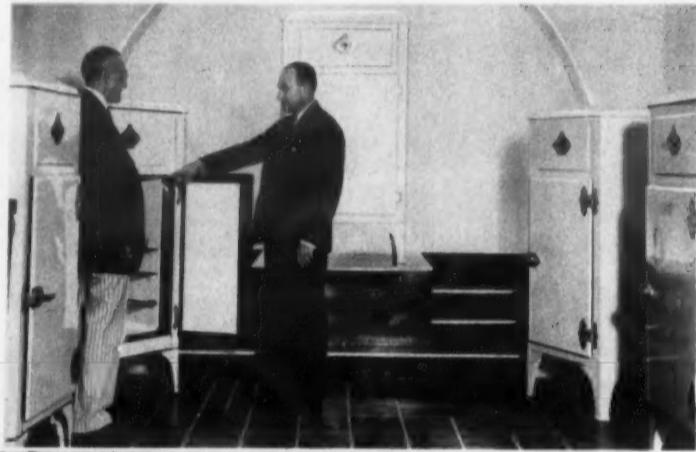




Ray Cosgrove regulates the Westinghouse refrigerator in the Armco-Ferro model house at the Fair. Mr. Cosgrove, like many another visitor to the Fair, thinks the "homes of the future" there are among the most important things to see.



Ray Cosgrove tells just why Westinghouse refrigerators are made the way they are. He is telling the story to E. H. Sniffin, manager of the Westinghouse exhibition.



Bob Richards, Westinghouse publicity man, acts as starter for a rickshaw race between two of the star college track men who pull these contraptions around the Fair grounds. E. H. Sniffin, manager of the Westinghouse exhibit at A Century of Progress, and Ray Cosgrove are the passengers.



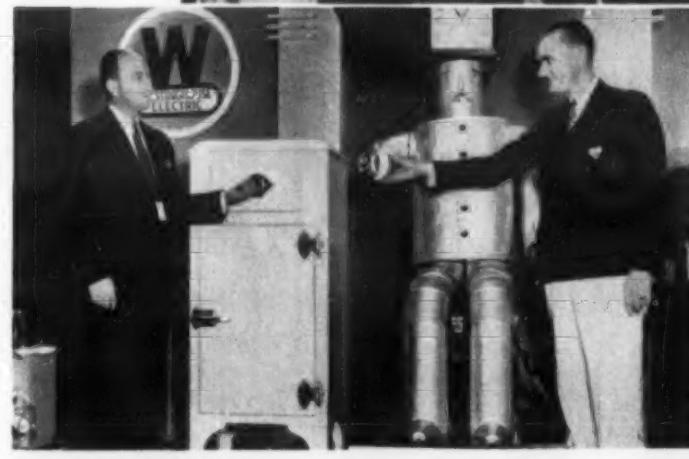
Elba Schmidt, home laundry demonstrator, joins Messrs. Cosgrove and Sniffin in a bit of a noonday snack in the model kitchen which is an integral part of the Westinghouse Fair exhibit.



Jaws fell ajar when this demonstration of lighting a lamp and broadcasting of power without the use of wires was made on the balcony of the Westinghouse exhibit. Ray Cosgrove did the trick.



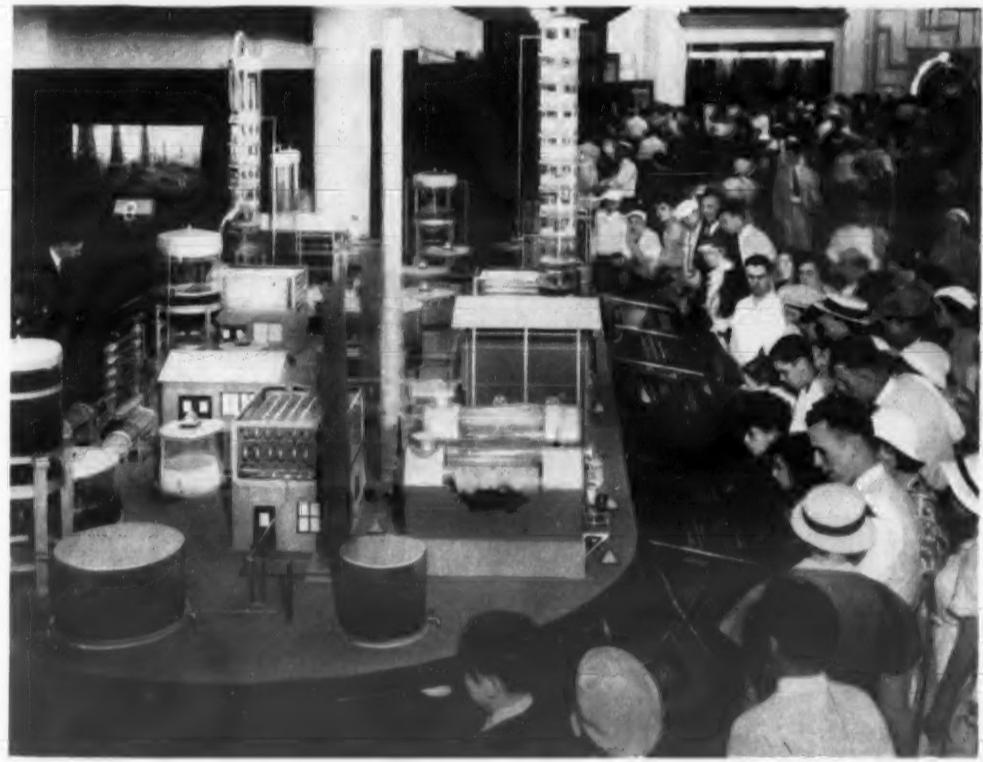
An argument! Ray Cosgrove thinks his refrigerator is a more efficient, more capable servant than J. H. Barnett's "Willie Vocalite." Each is shown with a hand on his pet product.



As you may have begun to suspect, this page records the visit of Ray Cosgrove, manager of the Westinghouse refrigeration division, to A Century of Progress exposition. Here he is shown admiring a corner of the Hall of Science. Mr. Cosgrove is NOT the man with the broom.



Searchlights atop the Electrical building converge and diffuse their beams with the fearful and wonderful result shown above. This night photograph was taken from across the lagoon.

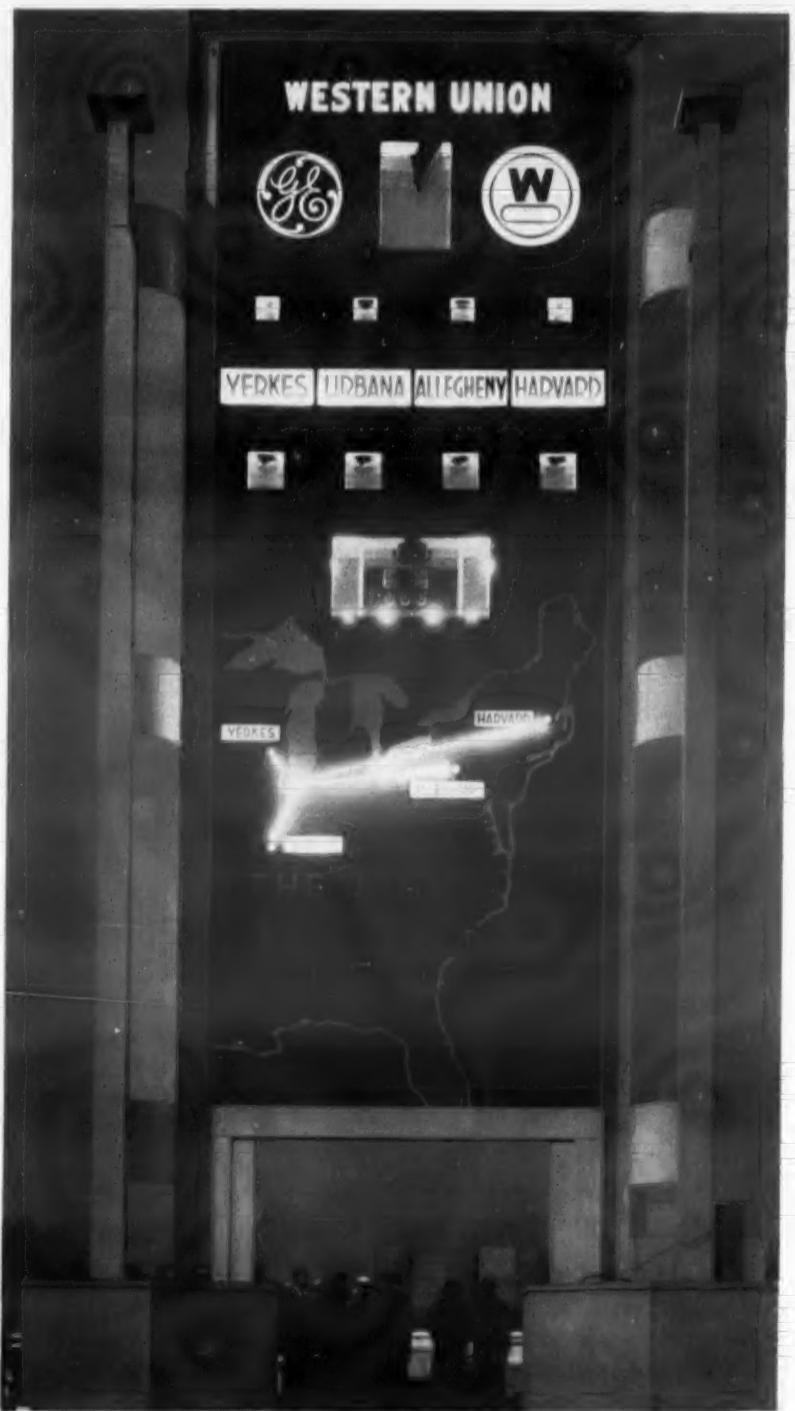


One of the most popular exhibits at the Fair is this miniature oil refinery, which is so graphically portrayed by cutaway models that even Elmer—the official Fair Goof—can figure it out.

Wearing the costume worn by the first World's Fair bride, Madelon Baker, who was married on this spot in the Casino, one of Mrs. Ford Carter's mannequins poses for a snapshot.



Ray Cosgrove drops in at the Armco-Ferro model house, which is an all-steel, porcelain-enamelled structure factory built at low cost. Mr. Cosgrove wants to see his refrigerator.

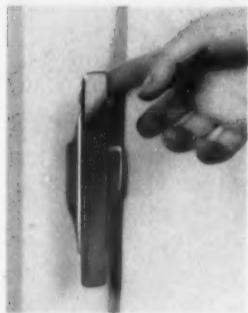


Nobody who visits A Century of Progress exposition should fail to be present when the star Arcturus turns on all the lights. Light which left that star in 1893, the year of the World's Columbian Exposition in Chicago, is caught, telegraphed, and snatched by photoelectric cells to illuminate the Fair.

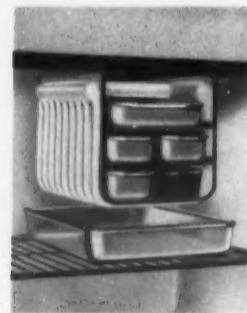
MASTER SERIES



WESTINGHOUSE NOW OFFERS THESE
8 OUTSTANDING FEATURES PLUS 22
OTHERS EQUALLY AS IMPORTANT



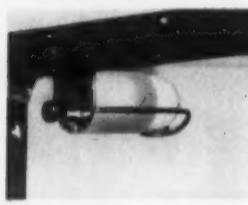
Handy-Latch Door Opener . . . opens door with fingertip touch or slight pressure of knee. An amazing new feature.



Larger, Super-Efficient, All-Porcelain TUBE-LESS Evaporator . . . freezes ice faster . . . easy to clean as a china dish.



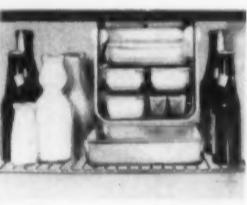
Select-a-cube Ice Trays . . . release ice cubes instantly . . . also complete tray equipment with storage and rubber grid trays.



Automatic Interior Flood-lighting. Light flashes on instantly when door is opened . . . turns off automatically when door is closed.



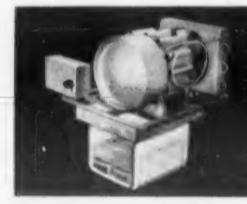
Ample Flat-Ribbon Positive-Fitting Shelves . . . solid, substantial, safe for even the smallest pitchers and containers.



Scientifically-Arranged Food Storage Space, with ample room provided for tall bottles, roasts, fowls and other bulky foods.



Seven-Point Selective Temperature Control, with constant-freezing position for fast ice making and quick frozen desserts.



Perfected Hermetically-Sealed Mechanism, permanently supplied with oil, protected against rust, dirt, moisture and leakage.

Westinghouse

PRESENTS
MASTER
Dual-automatic

LOWEST COST . . . HIGHEST QUALITY

Operating Economy over
In A Full-Powered, Full-Sized

One Line . . . Complete
One Quality . . . The Best That

PRICED AS
LOW AS \$99.00

AND EVEN THE SMALLEST . . . LOW
GENUINE FIRST LINE . . . FIRST QUALITY

Write . . . Wire . . . or 'Phone . . .

PICTURE THE PROFITS IN A COMPLETE LINE

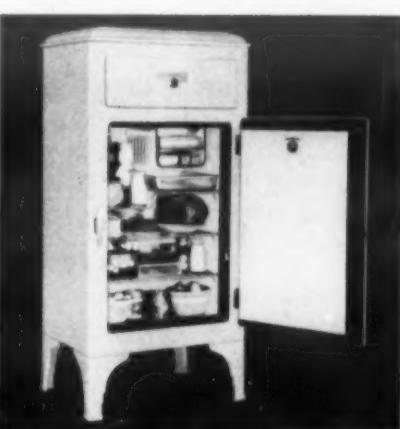
Every Dealer likes to "sell up". There's extra profit in it. Sell *fives* instead of *fours*, *sevens* instead of *sixes*. That's real selling! But remember—it takes a BALANCED LINE to do it. Exactly what Westinghouse now offers in this remarkable new line of Master Series Refrigerators. Here's a complete line of cabinets *purposely* designed to encourage "selling up". For beginning at the smallest, popular priced model each succeeding cabinet offers definite advantages in storage space and equipment over the size directly below it. Food storage space is stepped up gradually and evenly. There's real inducement for prospects to buy the next size larger. And there's REAL MONEY in it for alert dealers. Westinghouse Electric & Manufacturing Company, Refrigeration Division, Mansfield, Ohio.



Model BL-43



Models BL-45 and BP-45



Models BL-55 and BP-55



Model BL-65

Westinghouse Presents the New REFRIGERATOR SERIES of Domestic Refrigerators

THE QUARTERLY REFRIGERATORS EVER BUILT!

Any Company ever Before Achieved
A Full-Sized Refrigerator!

A Sample In Twelve Models
Is All That Can Be Built!

90
F. O. B. FACTORY . . . FREIGHT, TAX
AND INSTALLATION EXTRA

THE LOWEST PRICED MODEL IS A
FINE QUALITY REFRIGERATOR!

Phone . . . for complete details

SEE THE LINE LIKE THIS!



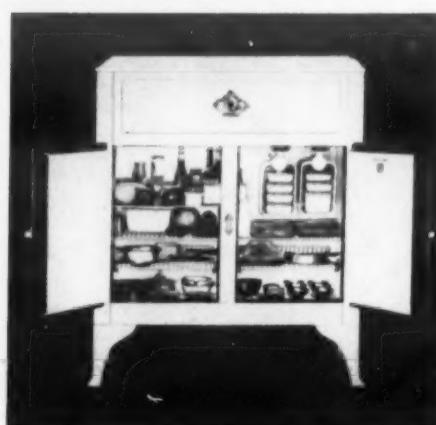
Models BL-65 and BP-65



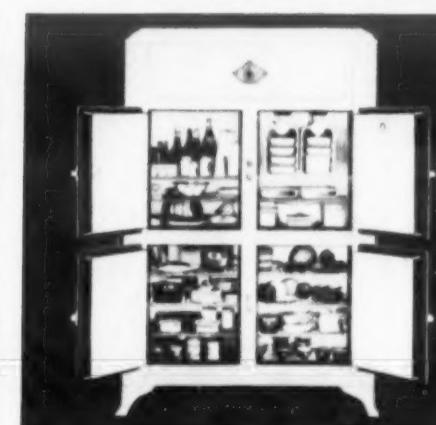
Models BL-75 and BP-75



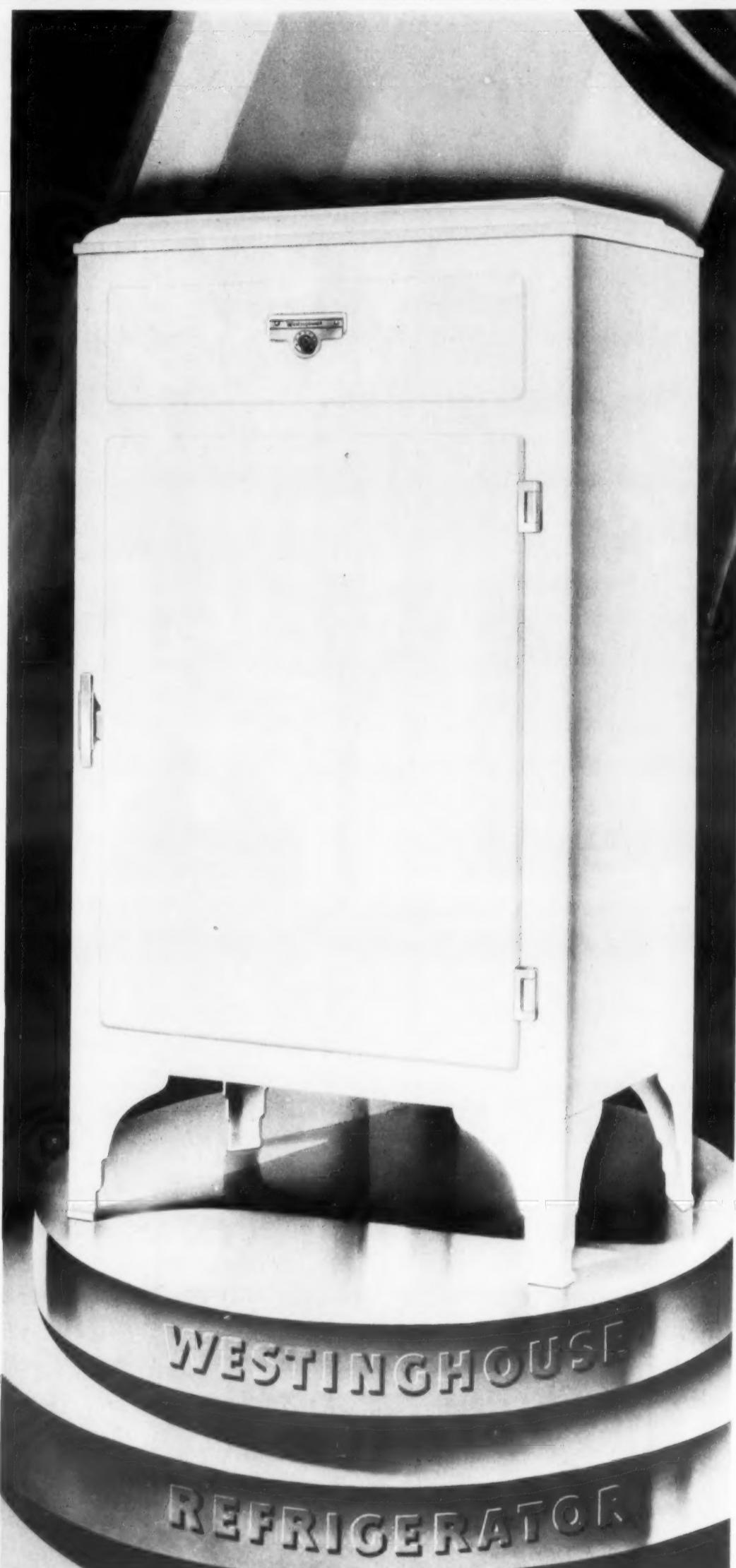
Model AP-90



Model AP-130

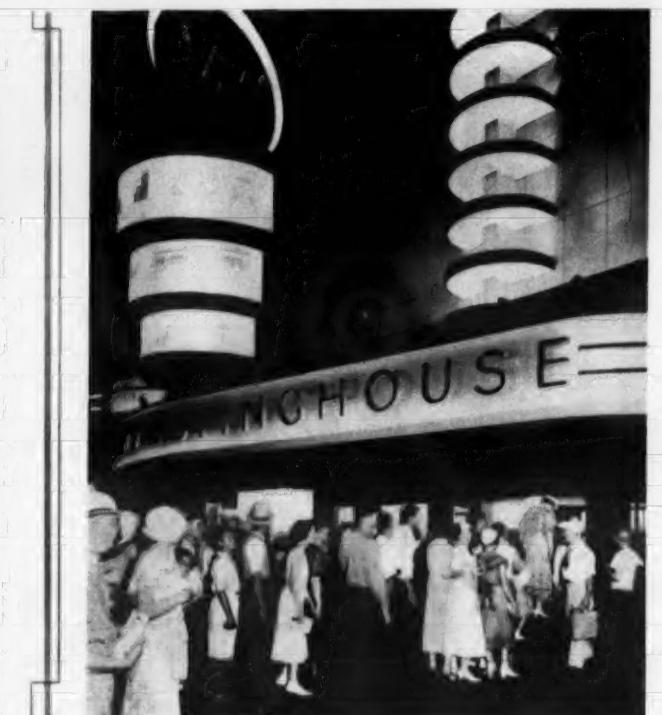


Model AP-200





What a setting for romance! Thousands of couples from all over the land are taking second honeymoons at the fairyland which is A Century of Progress. The handholders are enraptured by the beauties of the illuminated fountain and skylights of the Electrical building.



Crowds, crowds, and more crowds. At no hour of the day or night will A Century of Progress visitor feel lonely. Above a typical throng is seen examining a section of the Westinghouse exhibit at the Fair.

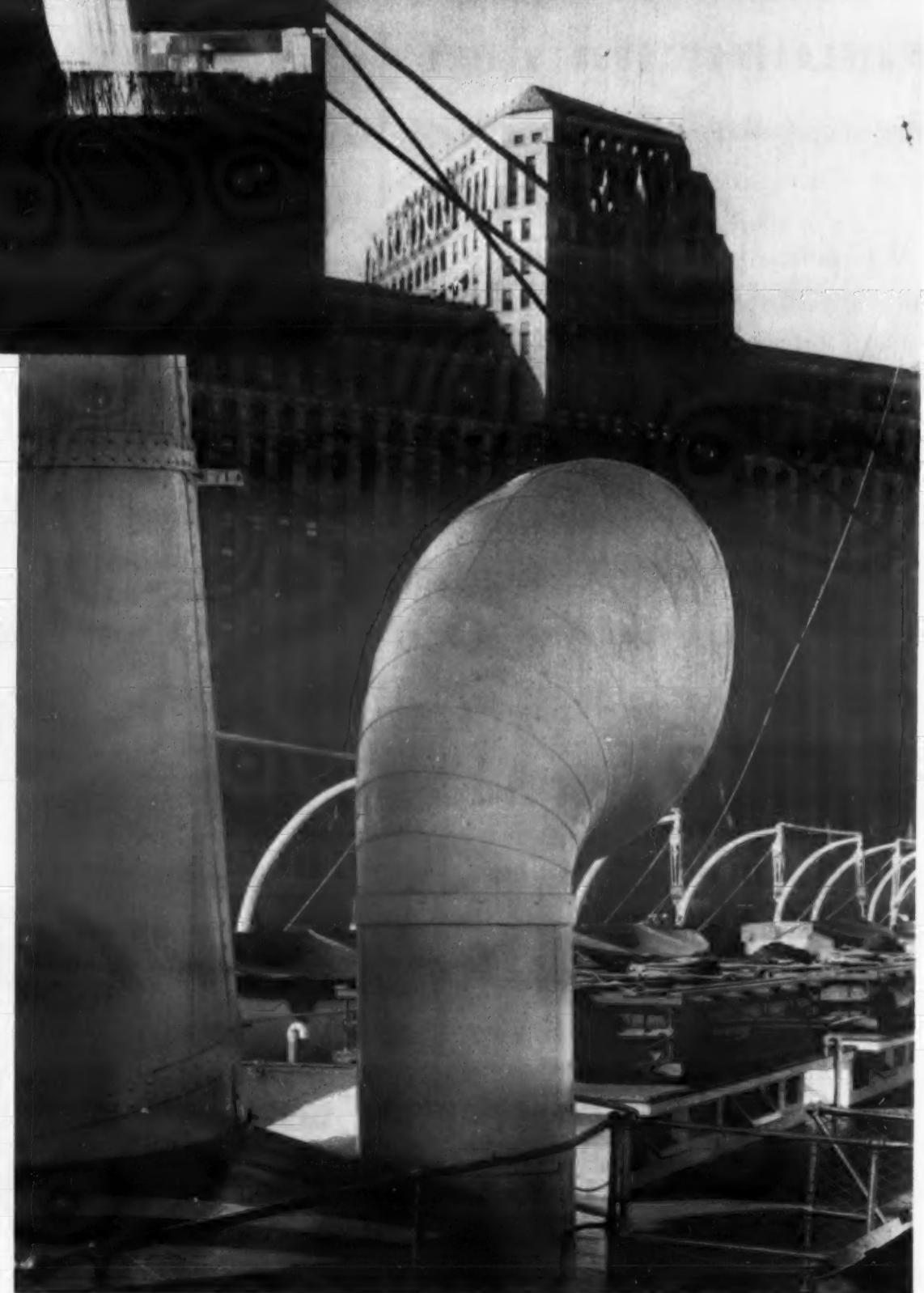
Over the top deck of the S. S. Juliata, which came to the World's Fair with a boatload of passengers and made itself a floating hotel, may be seen the Merchandise Mart, world's largest building. Offices of the Dry-Zero Corp. are located in the mammoth building.

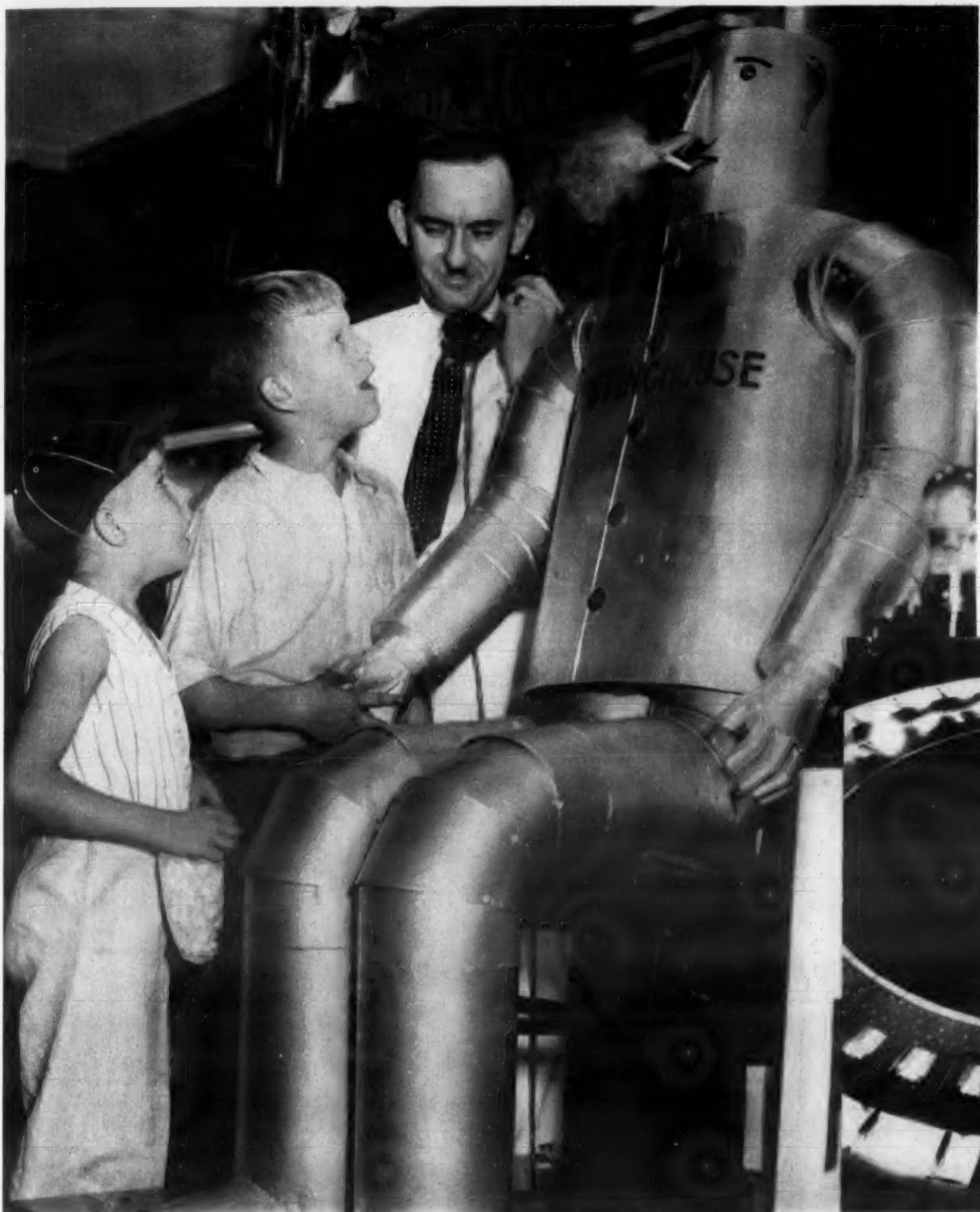


Model kitchens are very much in evidence at the Fair. Above may be seen a crowd gravitating to the model kitchen in the Westinghouse exhibit, which is one of the most attractive displays in the entire Electrical building.



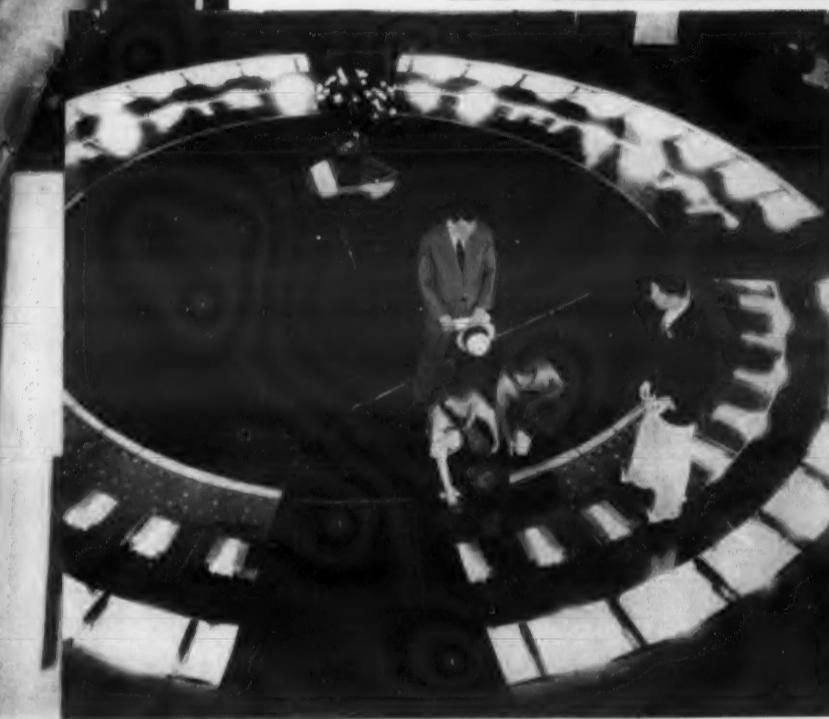
These kiddies are entranced with the operation of a water cooler in the refrigeration booth of the Westinghouse exhibit. In the rear a salesman is making a presentation of a household model.





"Shake hands with Willie Vocalite," smiles the inventor, J. M. Barnett. Willie acknowledges the greeting by blowing a blast of cigarette smoke through his nose. The famous Westinghouse robot, which can do everything but argue with a woman, is a big hit at the Fair.

One of the most precious buildings at A Century of Progress is the copy of the Temple of Jehol, which was erected beside the original Asiatic architectural masterpiece, brought back piece by piece, and reassembled by Vincent Bendix.



Because it involves motion, light, & color, this cross-section of the biggest water-wheel generator in America easily gets as much, or more, attention as any portion of the Westinghouse exhibit. It is inlaid in the floor, a veritable moving mosaic. At the rear are motor exhibits.



Perhaps even more noticeable than the futuristic architecture of A Century of Progress buildings is their remarkable lighting and color schemes, for which the late Joseph Urban was responsible. Above may be seen three of the five pavilions of the General Exhibits group, showing how fascinating some of these structures can be at night.